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REPORT OF THE FEDERAL HORTICULTURAL BOARD

UNITED STATES DEPARTMENT OF AGRICULTURE,
FEDERAL HORTICULTURAL BOARD,
Washington, D. C., October 13, 1927.

SIR: I submit herewith an executive report covering the administration of the plant quarantine act for the fiscal year ended June 30, 1927.

Respectfully,

C. L. MARLATT, *Chairman.*

Hon. W. M. JARDINE,
Secretary of Agriculture.

INTRODUCTION

During the year the board lost by death (May 10, 1927) George Bishop Sudworth, who had been with the board since its organization as the representative of the Forest Service of the department. This vacancy has not yet been filled.

The selection by the Bureau of Plant Industry of R. Kent Beattie, of the board's staff, to make a study of the chestnut blight disease in the Orient, with the object of securing and introducing into the United States a blight-resistant chestnut, left vacant the position of chief of the board's office of foreign-plant quarantines, a very important branch of the work, which Mr. Beattie had filled very satisfactorily for several years. This situation, together with the rapid growth of the work of the board, was the basis for a reorganization during the year of the board's central administration. The reorganization follows the two main fields of work under the plant quarantine act, and provides for (1) a branch of foreign-plant quarantines, and (2) a branch of domestic-plant quarantines. E. R. Sasscer, long associated with the board in important capacities, has been placed definitely in charge of the branch of foreign-plant quarantines, and assists the board in the enforcement, at the ports of entry and elsewhere in the United States, of some 22 foreign-plant quarantines restricting, controlling, and

safeguarding entry of plants and plant products known to be carriers of specific plant enemies. S. B. Fracker, who for several years has been State entomologist of Wisconsin, has been placed in charge of the branch of domestic-plant quarantines, and will assist the board in the enforcement of some 19 domestic-plant quarantines for the prevention of spread of important new pests within the United States, and between the Territories of Porto Rico and Hawaii and the mainland of the United States.

It should be noted that the original field of the Federal Horticultural Board has been considerably broadened and enlarged both by amendments to the act and by related legislation of Congress—the latter including the legislation providing for the Mexican-border inspection and control, and for export certification. The board is also charged by the Secretary with the enforcement of the insect pest act of 1905, and co-operates with the Post Office Department in the enforcement of the terminal inspection act of 1915. The bulk of the work of the board, however, falls under the plant quarantine act and the closely related Mexican border act. Under the export certification act, certification of export products is made in accordance with the requirements of foreign countries. The more important of these activities are discussed in this report.

The tables included in this report have been carried in the annual reports of this board over a considerable series of years, and constitute a continuing record, not available elsewhere, of distinct reference value. One series of these tables gives a summary of the results of the enforcement of the various quarantines in the interception and exclusion from the United States of important new crop pests—insect and disease. Other tables record the importations of the plants and plant products, the entry of which is restricted and safeguarded under the various foreign quarantines.

As indicated in previous reports, the quarterly Service and Regulatory Announcements published by the board constitute a permanent record of the new quarantines and of revisions and modifications of those already in force. The final number of these announcements for each year contains a complete annotated list of the current quarantines, domestic and foreign, as well as other restrictive orders.

ENFORCEMENT OF FOREIGN-PLANT QUARANTINES

The enforcement of the restrictions on the entry of plants and plant products under the various foreign quarantines which have been promulgated by the department for the purpose of excluding new and dangerous pests to American agriculture, necessitates control at substantially all the ports of entry in the United States. The board receives very important cooperation in this work from the Customs Service and from the Post Office Department—the latter in connection with parcel-post importations. Very material aid is also rendered by the State Department, through the agency of the diplomatic and consular officers of the United States, and for the use of such officers the board has recently prepared, for distribution by the State Department, an annotated list of plants and plant products the entry of which into the United States is restricted or prohibited. This list is to enable diplomatic and consular officers to determine quickly the restrictions relative to any plants or plant products and in the briefest form the nature of the restrictions and the particular plant pest—disease or insect—which is the basis of the quarantine.

Inasmuch as full descriptive matter relative to the foreign quarantines enforced by this department is available elsewhere, it is unnecessary to list

or discuss them particularly in this report, other than the summary, which has been given yearly, of new quarantines and amendments of old quarantines (p. 34). It is, however, desirable to include, as in former years, a record of the inspection work which is done at ports of entry and elsewhere in the United States in the enforcement of these quarantines, and of the importations of restricted plants and plant products. These features are discussed below under the respective titles of "Plant quarantine inspection" and "Records of imports of restricted plants and plant products."

PLANT QUARANTINE INSPECTION

This work relates, for the most part, to the enforcement at maritime, interior, and Mexican border ports of entry, of foreign quarantines and regulatory orders which govern the entry into this country of plants and plant products, and involves: (1) The inspection of vessels arriving at ports of entry from foreign ports and from Porto Rico and Hawaii; (2) the inspection and disposition of all plants and plant products under restriction found in passengers' baggage by the United States customs officials; (3) the inspection of all plants and plant products, including nursery stock, seeds, bulbs, fruits, and vegetables entered under permit from all foreign countries and localities and certain products arriving from domestic territory; (4) disinfection (fumigation or sterilization) of cotton and broomcorn and other products requiring such treatment as a condition of entry; (5) inspection, in cooperation with customs and post-office officials, of restricted plants and plant products arriving by foreign parcel post; (6) inspection of plants and plant products introduced by the Department of Agriculture and all plants imported under special permit in accordance with the provisions of regulation 14, quarantine 37; (7) inspection of plants (domestic) entering and leaving the District of Columbia; (8) inspection of plant-introduction gardens of the Bureau of Plant Industry; and (9) inspection of fruits and vegetables in the field and at the point of shipment in Porto Rico, in accordance with the provisions of quarantine 58. In addition, this service also inspects and certifies export fruit and vegetables to meet the sanitary requirements of certain foreign countries. The more important features of this inspection work are summarized below.

MEXICAN BORDER SERVICE

Inspectors of the board are now stationed at 10 ports of entry along the Mexican border; namely, Brownsville, Hidalgo, Laredo, Eagle Pass, Del Rio, and El Paso, Tex.; Douglas and Nogales, Ariz.; Calexico and San Ysidro, Calif. The ports of San Ysidro and Hidalgo were added during the year. Prior to July 1, 1926, the board had been represented at Tia Juana (name since changed to San Ysidro) by two customs inspectors acting as collaborators, but due to the increased traffic and other conditions at that port, it was deemed advisable to place a full-time inspector there at the beginning of the fiscal year. The customs inspectors have continued to act as collaborators and have rendered valuable assistance in the enforcement of the various plant quarantines and regulations. The completion of a bridge across the Rio Grande at Hidalgo, Tex., also made it necessary to place an inspector at that port. The amount of contraband fruits, some of which were infested with the maggots of the Mexican fruit worm, intercepted at Hidalgo since May 9, 1927 (the date the port was opened) fully justifies the placing of an inspector there.

During the early part of 1927 the railroad between Tepic, Nyarit, and

Guadalajara, Jalisco, Mexico, was completed, thus making direct connection between the west coast and the interior of Mexico. Prior to the completion of this railroad the west coast had been more or less isolated from the interior of Mexico and apparently has been free from both the pink bollworm and the Mexican fruit worm. Conditions now are more favorable for both these pests reaching the west coast, necessitating greater precautions at the ports of entry in Arizona and California.

The border activities taken as a whole show an increase over the previous fiscal year. At the six ports having rail connections with Mexico, a total of 36,954 freight cars were inspected in the Mexican railway yards, 33,442 entered, and 18,911 were fumigated as a condition of entry. Three thousand and twenty-one cars were found to be contaminated with cottonseed, a decrease of 472 cars from the previous year. Four cars, all at the port of El Paso, were found contaminated with cottonseed which contained larvae of the pink bollworm. A charge of \$4 is made for each car fumigated, and all fees collected are turned into the Treasury as miscellaneous receipts. A record of this work is given in Table 1.

TABLE 1.—*Inspection and fumigation of railway cars crossing the border from Mexico, fiscal year 1927*¹

Port	Cars inspected	Cars entered	Cars with cottonseed	Cars fumigated	Fees collected
Brownsville.....	412	412	157	409	\$1,636
Laredo.....	9,940	8,091	1,231	8,091	32,412
Eagle Pass.....	3,686	3,074	1,047	3,074	12,200
El Paso.....	9,614	8,815	336	4,397	17,600
Nogales.....	12,058	11,806	146	2,940	11,760
Douglas ²	³ 1,244	1,244	104	0	0
Total.....	36,954	33,442	3,021	18,911	75,608

¹ This table does not include the work performed at Del Rio, Tex., since there is no railway connection with Mexico at that point. Inspectors at this port inspected 25,320 vehicles of various descriptions, 28 of which were found contaminated with cottonseed and were fumigated as a condition of entry. Fees amounting to \$14 were collected and turned into the Treasury.

² No fumigation facilities at this port.

³ Does not include 1,439 Mexican gondolas which crossed to the smelter, were unloaded, and returned to Mexico.

In addition to the inspection, certification, and fumigation of railway cars from Mexico, the board's inspectors cooperate with the Customs Service in the inspection of baggage, personal effects, parcel-post, and express packages from the same country. A total of 65,576 pieces of baggage and 4,460 parcel-post packages were examined.

In addition to the baggage mentioned, 948 mattresses, 1,144 pillows, and 2,304 quilts, many of them in the possession of laborers going into the cotton districts of this country, were found to be stuffed with raw cotton or seed cotton and were sterilized with live steam under pressure before entry was permitted. Table 2 indicates, either by

pounds or by individual units, contraband material intercepted in the possession of individuals crossing the Mexican border. There was a considerable increase over the previous year in the amount of fruit and vegetables entering under permit. In addition to large quantities of certain fruits and vegetables which are entered for local

consumption under the inspector's permit, 962 cars of bananas and 5 cars of bananas, pineapples, and tomatoes mixed, entered at El Paso. At the port of Nogales, 4,521 cars of tomatoes, 1,478 cars of vegetables, 190 cars of bananas, 67 cars of cantaloupes, and 33 cars of watermelons were inspected and entered.

TABLE 2.—*Contraband plants and plant products intercepted at Mexican border ports, fiscal year 1927*

[Unless otherwise stated, the figures in the columns under number indicate the number of specimens intercepted]

Commodity	Brownsville		Del Rio		Douglas		Eagle Pass		El Paso		Laredo		Nogales		San Ysidro		Hidalgo		Total	
	Interceptions	Number	Interceptions	Number	Interceptions	Number	Interceptions	Number	Interceptions	Number	Interceptions	Number	Interceptions	Number	Interceptions	Number	Interceptions	Number	Interceptions	Number
Apples.....	50	685	5	30	154	371	127	792	558	2,416	344	1,582	149	1,208	22	126	5	81	414	7,218
Apricots.....	4	70	—	—	15	178	—	—	8	323	3	608	2	136	27	608	1	18	60	1,941
Avocados.....	80	746	4	26	5	10	66	400	233	838	286	800	25	281	40	95	49	270	788	3,466
Avocado seeds.....	—	—	1	3	—	—	8	91	57	164	146	352	8	203	2	56	8	13	231	884
Bulbs.....	—	—	—	—	12	54	—	—	8	32	—	—	—	—	—	—	—	—	20	86
Cherimoyas.....	4	5	—	—	—	—	3	5	30	42	30	105	1	2	—	—	—	—	68	159
Cherries.....	—	—	—	—	—	—	—	—	—	—	—	—	9	384	11	288	—	—	20	672
Corn, ears.....	9	106	10	97	—	—	—	—	98	425	—	—	7	127	18	125	1	38	136	791
Cornstalks.....	5	220	14	57	1	40	1	10	—	—	36	50	—	—	—	—	—	—	64	504
Corn husks.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
lbs.....	9	13	47	26½	18	48	27	56	38	89½	26	41	51	118	2	13	—	—	218	404½
Corn, shelled.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
lbs.....	11	295	37	61½	47	322	49	175	82	396	108	296	69	329	1	8	—	—	404	1,882½
Cotton bolls.....	8	103	—	—	—	—	—	—	17	40	1	15	5	220	2	34	—	—	33	412
Cotton lint.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
lbs.....	3	6	—	—	2	2	3	10½	69	51½	22	63	31	56	3	6	—	—	133	194½
Cotton seed.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
lbs.....	4	½	27	10	—	—	2	8	44	74	6	6	1	2	—	—	—	—	84	100½
Dates, fresh.....	—	—	—	—	4	98	—	—	—	—	—	—	9	650	1	48	—	—	14	796
Figs.....	3	31	7	28½	5	347	78	6,468	66	777	103	1,780	19	2,130	13	360	1	23	295	12,202
Grapefruit.....	43	159	1	6	2	3	3	6	4	18	36	48	136	11	44	1	1	—	131	395
Guavas.....	5	53	5	39	—	—	23	400	136	711	107	792	15	400	4	90	—	—	295	2,485
Limes, sweet.....	4	33	—	—	15	36	7	172	113	488	116	768	57	828	—	—	—	—	312	3,325
Mameys.....	25	50	1	3	—	—	4	6	141	237	89	392	5	14	—	—	—	1	266	708
Mangoes.....	52	210	4	7	38	95	31	160	204	545	192	696	38	795	154	750	27	104	740	3,362
Oranges.....	110	566	12	27	234	498	159	728	673	1,591	613	2,925	258	1,932	108	1,053	15	28	2,182	9,348
Orange leaves.....	—	—	—	—	13	15	—	—	10	5½	9	16	—	—	—	—	—	—	32	36½
Papayas.....	3	16	—	—	—	—	—	—	—	—	—	—	11	20	—	—	—	—	14	36
Peaches.....	3	101	19	1,209	65	409	53	774	138	1,197	88	390	55	1,526	11	152	—	—	432	5,758
Pears.....	4	226	8	73	36	139	11	48	120	493	86	300	19	99	3	52	1	2	288	1,432
Persimmons.....	1	6	—	—	—	—	—	—	3	9	3	10	3	27	2	6	—	—	12	58
Plants.....	76	1,098	30	158	59	902	71	231	338	2,276	304	2,780	340	994	118	1,196	11	89	1,347	9,724
Plums.....	2	49	1	34	5	322	1	6	30	608	24	108	32	755	12	210	—	—	107	2,092
Pomegranates.....	7	52	10	43	10	24	43	458	45	137	112	582	89	460	8	55	1	5	325	1,816
Potatoes.....	3	2,513	1	10	—	—	24	398	117	2,446	45	792	—	—	5	90	2	20	197	6,269
Potatoes, sweet.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Prunes.....	4	79	4	106	27	275	32	230	92	1,098	16	116	83	640	3	30	1	13	262	2,587
Quinces.....	—	—	—	—	1	40	—	—	—	—	—	—	—	—	1	32	—	—	2	72
Sapotes.....	3	85	6	64	90	145	54	604	149	430	117	785	65	827	1	3	—	—	485	2,943
Sorghum stalks.....	3	5	1	1	—	—	—	—	21	48	—	—	4	48	1	6	—	—	40	108
Sugar cane, stalks.....	5	172	3	8	3	15	1	10	24	32	3	20	33	101	1	1	—	—	73	359
Tangerines.....	9	55	21	57	47	60	83	192	202	560	93	250	—	—	18	25	—	—	473	1,197
Tejocotes.....	4	25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	25
lbs.....	—	—	—	—	5	232	—	—	9	580	—	—	—	—	—	—	—	—	14	812

¹ Report covers period May 7, 1927 (date port was opened) to June 30, 1927.

INSPECTION OF VESSELS

Vessels arriving from foreign ports as well as from Hawaii and Porto Rico are boarded promptly upon arrival, and a search is made for contraband plants and plant products in the staterooms, ice boxes, fruit and vegetable lockers, and passengers' and crews' quarters. All plants and plant products intercepted by the customs inspectors in passengers' baggage are turned over to representatives of the board for disposition. During the year under review 6,742 plants and plant products were thus intercepted at maritime ports and

disposed of. Full-time inspectors are now stationed at the more important ports of entry with the exception of those located in California, Florida, Alabama, Mississippi, Georgia, Hawaii, and Porto Rico, which States and insular possessions maintain plant quarantine inspection services. These inspectors serve as collaborators of the board at a nominal cost and have rendered very efficient service. This work is in addition to the cargo, parcel post, and export inspection subsequently referred to.

TABLE 3.—*Ships inspected during fiscal year 1927*

Port	Number arrived				Number inspected				Number on which contraband was found							
									Ships' stores				Officers' and crews' quarters			
	Foreign	Coastwise	Porto Rico	Hawaii	Foreign	Coastwise	Porto Rico	Hawaii	Foreign	Coastwise	Porto Rico	Hawaii	Foreign	Coastwise	Porto Rico	Hawaii
Astoria	590	1,226	0	10	249	25	0	6	35	0	0	1	36	0	0	2
Baltimore	1,332	859	36	4	951	251	18	4	607	75	6	0	21	5	0	0
Boston	1,357	242	14	0	1,119	182	14	0	605	58	6	0	10	0	0	0
Charleston	225	360	0	0	1 251	66	0	0	116	16	0	0	14	3	0	0
Detroit (4 months)	2 245															
Galveston	608	682	6	0	606	6	6	0	260	0	4	0	16	0	0	0
Houston	177	702	0	0	177	634	0	0	21	2	0	0	0	0	0	0
Jacksonville ¹	159	1,385	4	0	159	1,385	4	0	75	1,261	3	0	2	0	0	0
Key West ²	1,041	327	0	0	1,041	327	0	0	11	0	0	0	0	0	0	0
Miami ³	780	475	0	0	779	0	0	0	0	0	0	0	0	0	0	0
Mobile ³	161	0	4	0	161	0	4	0	79	0	0	0	8	0	0	0
New Orelans	2,247	1,107	18	7	2,186	150	18	7	912	51	7	1	458	0	0	0
New York	4,740	4,264	219	0	4,116	624	193	0	3,352	0	77	0	11	0	24	0
Pensacola ³	118	361	0	0	140	361	0	0	94	54	0	0	1	0	0	0
Philadelphia	1,298	1,752	36	0	1,128	816	36	0	665	378	14	0	245	33	6	0
Portland, Ore.	155	353	0	6	155	353	0	6	81	129	0	1	17	4	0	0
San Diego ³	1,375	401	0	2	1,375	401	0	2	19	0	0	0	29	0	0	0
San Francisco ³	484	2,322	0	267	484	2,322	0	267	0	0	0	0	0	0	0	0
San Pedro ³	1,904	2,177	1	51	1,641	2,394	3	51	209	22	0	0	48	4	0	2
Seattle	2,683	2,561	0	11	1,031	320	0	11	195	51	0	3	2	0	0	0
Tampa ³	527	742	5	0	527	742	5	0	379	320	5	0	38	18	0	0
Total	22,206	22,298	343	358	18,276	11,359	301	354	7,715	2,417	122	6	956	67	30	4

¹ 26 foreign ships put in at Charleston for bunkers and were inspected by Federal Horticultural Board inspector but were not entered by customs.

² From Canadian ports only.

³ Collaborators stationed at these ports.

CARGO INSPECTION

All cargoes subject to plant quarantine restrictions, with the exception of special-permit plant material imported under regulation 14 of quarantine 37, which is examined in Washington, D. C., or San Francisco, Calif., are inspected at the port of entry or port of first arrival. A total of 29,595 shipments was offered for entry and inspection, 29,332 of which were admitted and 263 denied. For record of commercial entries of restricted plants and plant products, see pages 9-24. Tables 9 to 24 indicate the wide range of products which are subject to restric-

tion. Many of these shipments are, as a condition of entry, disinfected at the port of first arrival, such as foreign cotton lint, cotton waste, certain types of bagging, and broomcorn. In addition, narcissus bulbs are given the hot-water treatment at point of destination, under the supervision of representatives of the board. Moreover, considerable time is devoted to the supervision of the cleaning by the importers of products contaminated with objectionable material.

Table 4 indicates the volume of this inspection, by ports.

TABLE 4.—*Inspections of shipments of plants and plant products offered for entry fiscal year 1927*

Port	Number of shipments requiring inspection	Number of shipments refused entry	Number of interceptions		Port	Number of shipments requiring inspection	Number of shipments refused entry	Number of interceptions	
			Insects	Diseases				Insects	Diseases
Astoria.....	0	0	0	0	New York.....	15,948	121	1,195	260
Baltimore.....	294	0	70	24	Pensacola ²	0	0	1	0
Boston.....	2,296	1	404	135	Philadelphia.....	953	10	311	298
Charleston.....	65	4	17	7	Portland, Oreg.....	184	2	34	20
Chicago.....	99	0	7	2	St. Louis.....	69	0	6	1
Detroit ¹	57	7	3	2	San Diego ²	168	58	1	0
Galveston.....	127	5	15	0	San Francisco ²	1,858	24	319	1
Houston.....	129	0	0	0	San Pedro ²	1,651	4	39	0
Jacksonville ²	2	0	1	0	Seattle.....	796	5	185	21
Key West ²	1,275	0	0	0	Tampa ²	678	2	1	0
Miami ²	55	0	0	0					
Mobile.....	200	0	16	0					
New Orleans.....	2,691	20	261	13	Total.....	29,595	263	2,886	784

¹ Representative of board stationed at Detroit, March, 1927.² Collaborators stationed at these ports.

INSPECTION OF SPECIAL-PERMIT AND DEPARTMENTAL IMPORTATIONS

Ninety-five per cent of all plants imported under special permit are examined in Washington. This includes all introductions from Europe via eastern and other ports, except San Francisco, and amounts to a very large volume of material. Some 60,000,000 plants have been thus entered since 1919. A tabular record of the special-permit material is given on pages 14-16. The only other port of entry for such material is San Francisco, to cover entries made from trans-Pacific coun-

tries and destined for Pacific coast or other western points. Washington is also the port of entry for a good deal of other restricted material, as, for example, all parcel-post shipments. Under the plant quarantine act also the Federal Horticultural Board is made the administrative agency for the enforcement of domestic plant quarantines with respect to the District of Columbia. An important additional feature of the work is the handling of all the plant importations made by, or through, the United States Department of Agriculture.

TABLE 5.—*Summary of plants and plant products offered for inspection in the District of Columbia, fiscal year 1927*

Material inspected	Foreign	Domestic	Fumigated	Otherwise treated	Infested with insects ¹	Infected with diseases
Lots of plants and plant products (departmental).....	Number 7,314	Number 3,815	Number 2 8,218	Number 2 5,207	Number 483	Number 136
Shipments of plants under regulation 14, quarantine 37 (commercial).....	3 1,100		126	38	156	204
Shipments of plants under regulations 3 and 15, quarantine 37 (commercial).....	4 724		5 3,834	61	21	12
Containers of domestic plants (mail, express, and freight).....		10,536				
Shipments of plants for distribution by United States Botanic Garden.....		4,764				
Shipments of plants by private individuals.....		243			18	8
Interceptions of plants and plant products referred to Washington ⁶	841		239	14	17	18
Cotton samples referred to Washington.....	13,584		13,584			

¹ This indicates the number of lots or shipments found to be infested, and not the number of species of insects collected. Some shipments were found to contain several species of insects.² The apparent excess in the number of lots of plants and plant products (departmental) fumigated and otherwise treated over the number of lots received is caused by giving treatments in addition to fumigation.³ 2,274 containers.⁴ 1,003 containers.⁵ This figure represents the number of lots in the shipments which were fumigated.⁶ These interceptions represent plants and plant products arriving by mail without permits.

FOREIGN PARCEL-POST INSPECTION

In addition to the entry under permits duly issued of restricted plants by parcel post, discussed in the previous section, the inspectors of the board at ports of entry and other points throughout the United States where inspectors are stationed cooperate with the Postal and Customs Services in the inspection and safeguarding of the very considerable volume of such restricted plant material received through the mails not under permit. Where such material is possible of entry under the quarantine, it is sent to Washington for inspection, to be later forwarded to the addressee. Articles which are not subject to such entry are returned to point of origin or destroyed. Mail packages arriving at ports where there are no representatives of the board are dispatched to the nearest port at which inspectors are stationed. Exclusive of packages containing shamrocks with soil removed and the so-called sacred lemon (*Citrus medica*), 10,666 packages were inspected. Of this number, 3,628 contained contraband material.

INSPECTIONS IN HAWAII AND PORTO RICO

Similar port and ship inspection service is carried out under the authority of the plant quarantine act at the ports of entry of the Territories of Hawaii and Porto Rico.

In Hawaii the enforcement of the Federal quarantines and the necessary

port-inspection work is conducted by the Territorial Government in cooperation with the United States Department of Agriculture under the same arrangement which is in effect with respect to California and Florida. In addition, the board is charged, in cooperation with the Bureau of Entomology, with the inspection and certification of fruits and vegetables shipped from Hawaii to the mainland of the United States.

A similar plan of cooperation with the Territorial Department of Agriculture is followed in the case of Porto Rico as to port inspection. The board, however, does maintain in Porto Rico an inspection unit to aid in the enforcement of quarantine No. 58 (domestic), which controls the movement of fruits and vegetables from that island to the mainland of the United States. The inspection and certification of such exports is being made by the board in Porto Rico prior to shipment to the coast, with the object of avoiding delays of perishable material at port of entry. The inspectors stationed in Porto Rico make repeated examinations of the fruits and vegetables in the fields, groves, and packing houses, as a basis for the issuance of certificates. A total of 5,476 shipments was inspected and certified, involving 1,613,483 containers. A summary (by containers) of the fruits and vegetables examined and certified for shipment to the mainland is given in Table 6.

TABLE 6.—*Fruits and vegetables inspected and certified for shipment from Porto Rico to the mainland, fiscal year 1927*

[By containers]

Commodity	July	August	September	October	November	December
Grapefruit.....	9,594	40,584	159,672	157,826	73,401	3,595
Pineapples.....	15,571	10,926	4,230	62,213	11,940	7,202
Oranges.....	54	1,161	3,364	4,878	68,796	18,416
Peppers.....	130	40			35	553
Eggplants.....						177
Tomatoes.....					56	1,821
Dasheens.....	39	45	56	21	55	253
Tangerines.....			1	1	234	391½
Citrons.....	102	90	82	77	76	34
Plantains.....	355	303	9	3	12	27
Pumpkins.....					143	189
Ginger root.....	169	46	33	33	48	11
Cucumbers.....				15	35	200
Mixed fruits.....	6	21	1	3	41	166½
Lemons.....				149	53	
Limes.....	47	12	4			
King oranges.....					31	2
Avocados.....	2	18	10	1	5	
Bananas.....	16					2
Mandarins.....						2
Total.....	26,085	53,246	167,462	225,220	154,961	33,042
Certificates issued.....	246	296	302	437	519	368

TABLE 6.—*Fruits and vegetables inspected and certified for shipment from Porto Rico to the mainland, fiscal year 1927*—Continued

Commodity	January	February	March	April	May	June	Total
Grapefruit.....	3, 479	17, 836	12, 025	26, 798	70, 289	101, 684	676, 783
Pineapples.....	13, 870	7, 307	36, 343	181, 950	246, 936	44, 389	642, 877
Oranges.....	7, 535	46, 080	51, 217	47, 966	6, 534	16	256, 017
Peppers.....	2, 234	2, 114	2, 225	1, 463	2, 061	284	11, 139
Eggplants.....	1, 683	2, 911	3, 540	1, 184	364	82	9, 941
Tomatoes.....	1, 945	2, 468	2, 880	202			9, 372
Dasheens.....	178	250	288	187	229	140	1, 741
Tangerines.....	581	57½	4				1, 270
Citrons.....	18	53	13	110	170	202	1, 027
Plantains.....		12	7	26	17		771
Pumpkins.....	58	93	69	24	15	52	643
Ginger root.....	43	1	33	69	32	50	568
Cucumbers.....	24	57		1	26	20	378
Mixed fruits.....	25	44	31	15	17½	4	375
Lemons.....							202
Watermelons.....	31	4	55	12	29		131
Limes.....					8	32	103
King oranges.....			7			4	44
Summer squash.....			38				38
Avocados.....							36
Bananas.....			1		2		21
Mandarins.....	2	2					6
Total.....	31, 706	79, 289½	108, 776	260, 007	326, 729½	146, 959	1, 618, 478
Certificates issued.....	355	465	526	678	836	448	5, 476

INSPECTION OF PLANT INTRODUCTION
AND PROPAGATING GARDENS

As formerly, all plants distributed by the Bureau of Plant Industry from its field introduction and propagating gardens were inspected and certified prior to shipment. All plants so certified were examined by inspectors of the Federal Horticultural Board with the exception of those distributed from the Mandan and Chico gardens, which were inspected by officials of the States of North Dakota and California, respectively. The inspection by State officials of the plants distributed from these outlying stations effects a considerable saving to the board in the form of transportation. Table 7 indicates the number of plants inspected and certified for distribution.

TABLE 7.—*Summary of plants and seeds examined for distribution from plant introduction and propagating gardens, fiscal year 1927*

Station	Plants	Packets of seeds	Bud sticks, cuttings, tubers, and roots
	<i>Number</i>	<i>Number</i>	<i>Number</i>
Bell, Md.....	66, 699	50	1, 109
Chapman Field, Fla.....	14, 158	18	342
Chico, Calif.....	23, 605	285	7, 950
Mandan, N. Dak.....	194, 415	0	16, 700
Savannah, Ga.....	16, 488	0	100
Total.....	315, 365	353	26, 554

PESTS INTERCEPTED

During the fiscal year the inspectors and collaborators of the board collected on or in imported plants and plant products 556 recognized species and 473 insects which could be assigned to genera or families. These interceptions included a number of pests which are known to be injurious to agriculture, many of which at present do not occur in this country. Maggots of such injurious fruit pests as the Mediterranean fruit fly, the West Indian fruit fly, the melon fly, and the Mexican fruit worm were taken on a number of occasions in a wide variety of fruits arriving from a number of foreign countries. Chestnuts from Italy and Spain were repeatedly found to be infested with the so-called codling moth of Europe and species of chestnut weevils. The turnip gall weevil (*Ceutorhynchus pleurostigma*) arrived in turnips from France, Holland, and England. This insect, which is not known to occur in the United States, is reported to be very injurious to this crop at times. The West Indian sweet-potato weevil was intercepted on a number of occasions in sweet potatoes arriving from Porto Rico, Brazil, and Trinidad.

Such injurious insects as the pink bollworm of cotton, the European tussock moth, the brown-tail and gypsy moths, the European corn borer, the avocado weevil, the white tree pierid, the European earwig, and several species of wireworms were taken on several occasions. *Ustilago coicis*, a smut disease of *Coix lachryma-jobi*, a relative of corn, was intercepted on Coix seed from the Philippines. Wakker's hyacinth disease, or yellow slime disease, was intercepted on hyacinth bulbs from Holland. Several shipments of peonies from Holland and France were rejected in whole or in part, largely because of nematode infestations. Inasmuch as an annotated list of the insects and plant diseases intercepted in foreign plants and plant products is contained in the annual letter of information, published in the Service and Regulatory Announcements of this board, no attempt is made at this time to give a detailed account of these interceptions.

TABLE 8:—Total number of interceptions of insects and plant diseases at all ports, fiscal year 1927

Port	Insects	Plant diseases
Astoria.....	37	31
Baltimore.....	130	57
Boston.....	761	217
Brownsville.....	5	5
Calexico.....	1	0
Charleston.....	170	137
Chicago.....	21	2
Del Rio.....	9	0
Detroit (4 months).....	31	8
Douglas.....	37	1
Eagle Pass.....	15	0
El Paso.....	55	13
Galveston.....	25	3
Hidalgo (2 months).....	1	0
Houston.....	0	0
Jacksonville ¹	31	32
Key West ¹	51	0
Laredo.....	25	3
Miami ¹	14	0
Mobile ¹	34	1
New Orleans.....	376	35
New York.....	1,623	356
Nogales.....	16	3
Pensacola ¹	25	25
Philadelphia.....	1,693	651
Portland.....	38	22
Providence.....	77	8
Seattle.....	433	69
St. Louis.....	21	4
San Diego ¹	15	0
San Francisco ¹	912	4
San Pedro ¹	124	4
San Ysidro.....	27	5
San Juan, Porto Rico.....	218	10
Tampa ¹	14	1
Miscellaneous.....	85	23
Total ²	7,150	1,730

¹ Collaborators stationed at these ports.

² Of the 7,150 insect interceptions, 473 could be identified only to families or genera. The remaining 6,677 interceptions represent 556 recognized species and varieties.

RECORDS OF IMPORTS OF RESTRICTED PLANTS AND PLANT PRODUCTS

Under various foreign quarantines certain plants and plant products are restricted as to entry and made subject to inspection and, if necessary, disinfection, for the purpose of excluding various plant diseases and insect pests. Among these restricted plants and plant products are nursery stock, plants, and seeds for propagation, fruits and vegetables, grains from certain countries, broomcorn, and cotton, cotton waste, cotton wrappings, and cottonseed products. The records of

the importations of these articles are indicated in the following discussion and tables:

IMPORTATIONS OF NURSERY STOCK,
PLANTS, AND SEEDS

The importations recorded in Tables 9, 10, 11, and 12 are entered under regulation 3 of quarantine 37, under permits which are made continuing and unlimited as to the quantity which may

be imported. The restrictions under this regulation are intended merely to afford opportunity to inspect, and if necessary, safeguard the products as they are so entered. In the case of Table 9 the entries made in the preceding year are also listed for the purpose of comparison, and in Table 11 the bulb entries of the last eight years are brought together to show the fluctuation in the entry of different classes of bulbs.

TABLE 9.—*Importation of fruit, rose, and nut stocks, cuttings, and scions, under quarantine No. 37, year ended June 30, 1927*

[Figures indicate number of plants]

Kind of stocks, cuttings, and scions	Africa	Bul- garia	Can- ada	Cuba	Egypt	England	France	Ger- many	Greece	Holland
Apple.....			398			2,850	3,311,175	950		38,375
Cherry.....							6,865,850	300		8,620
Fig.....									100	
Grape.....	900	20,000					15,050	36	13	
Nectarine.....						42				
Nut.....			46				28,800	100		3,000
Olive.....					35					
Peach.....						48		5		
Pear.....							1,368,300	576		
Pineapple.....				50						
Plum.....							1,380,500	496		1,000
Quince.....							955,450	200		
Rose.....						3,274,430	2,160,800	200		6,331,080
Total.....	900	20,000	444	50	35	3,277,370	16,085,925	2,863	113	6,382,075

Kind of stocks, cuttings, and scions	Hun- gary	Ireland	Italy	Mex- ico	Port- ugal	Rus- sia	Scot- land	Syria	Total	
									1926-27	1925-26
Apple.....			357,000		12				3,710,760	4,926,409
Apricot.....	10								10	
Cherry.....	10								6,874,780	6,311,516
Fig.....			704						804	33
Grape.....	169,620		62,300			439		10	268,368	9,981
Nectarine.....									42	42
Nut.....			1	6					31,953	35,600
Olive.....									35	
Peach.....									53	48
Pear.....	10		100,105						1,468,991	3,857,707
Pineapple.....									50	
Plum.....			130,000						1,511,996	1,903,820
Pomegranate.....			50						50	
Quince.....			7,000						962,650	889,400
Rose.....		156,000	24,000				65,000		12,011,510	10,844,920
Total.....	169,650	156,000	631,160	6	12	439	65,000	10	26,842,052	28,779,476

TABLE 10.—*Importation of bulbs under regulation 3 of quarantine 37, year ended June 30, 1927*

[Figures indicate number of bulbs]

Bulbs	Africa	Aus- tralia	Azores	Bel- gium	Ber- muda	Canada	China	Eng- land	France
Chionodoxa.....								1, 012	
Convallaria.....						50		368	
Crocus.....								764	
Eranthis.....								56	
Fritillaria.....								37	
Galanthus.....								1, 650	
Hyacinth.....					33			48	674, 060
Ixia.....								202	
Lily.....		506	15, 666	6, 000	759, 237		7, 350	6, 117	562, 021
Muscari.....								1, 448	
Scilla.....								1, 545	
Tulip.....	500							963	41, 250
Total.....	500	506	15, 666	6, 000	759, 270	50	7, 350	14, 210	1, 277, 331

Bulbs	Germany	Holland	India	Ireland	Japan	Philip- pines	Rus- sia	Scot- land	Total
Chionodoxa.....		465, 860							466, 872
Convallaria.....	18, 039, 205	2, 518, 825		12					20, 558, 460
Crocus.....		9, 968, 185		118					9, 969, 070
Eranthis.....		144, 094							144, 150
Fritillaria.....		125, 601		50					125, 688
Galanthus.....		842, 594							844, 544
Hyacinth.....		23, 037, 037							23, 711, 178
Ixia.....		529, 202							529, 404
Lily.....	19, 000	217, 854	200	10	14, 633, 623	1, 000	150	28	16, 228, 762
Muscari.....		991, 891							993, 339
Scilla.....	200	1, 451, 565		100, 000					1, 553, 313
Tulip.....		129, 638, 323							129, 681, 036
Miscellaneous.....		11, 112							11, 112
Total.....	18, 058, 405	169, 942, 449	200	100, 190	14, 633, 623	1, 000	150	28	204, 816, 928

TABLE 11.—*Summary of bulb importations, regulation 3, quarantine 37, for the years 1919-20 to 1926-27*

[Figures indicate number of bulbs]

Bulbs	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25	1925-26	1926-27
Chionodoxa ¹					339, 766	465, 422	839, 637	466, 872
Convallaria.....	9, 964, 847	3, 606, 746	14, 951, 170	19, 63, 092	17, 568, 835	18, 980, 311	20, 543, 785	20, 558, 460
Crocus.....	3, 977, 892	5, 514, 805	6, 319, 082	8, 286, 500	10, 815, 920	10, 624, 670	10, 898, 968	9, 969, 070
Eranthis ¹					93, 314	152, 787	214, 173	144, 150
Fritillaria ¹					92, 951	104, 483	209, 543	125, 688
Galanthus ¹					797, 381	895, 003	1, 128, 335	844, 544
Hyacinth.....	16, 375, 494	22, 508, 891	24, 808, 236	29, 142, 797	32, 197, 740	27, 947, 261	23, 682, 560	23, 711, 178
Ixia.....					335, 158	371, 983	545, 278	529, 404
Lily.....	14, 538, 936	22, 490, 533	8, 219, 460	9, 143, 630	9, 690, 486	11, 27, 559	16, 031, 090	16, 228, 762
Muscari ¹					612, 329	906, 259	1, 404, 573	993, 339
Narcissus.....	56, 032, 918	77, 956, 195	77, 270, 548	77, 193, 281	62, 659, 666	106, 314, 049	142, 384, 199	
Scilla ¹					994, 762	1, 742, 514	2, 012, 750	1, 553, 313
Tulip.....	49, 972, 184	55, 075, 343	64, 846, 940	76, 719, 116	92, 559, 157	96, 290, 452	106, 849, 572	129, 681, 036
Unclassified.....	1, 653, 790	4, 756, 369	70, 750	183, 900				11, 112
Total.....	152, 516, 061	191, 968, 882	196, 486, 186	220, 274, 316	258, 737, 465	276, 002, 753	326, 744, 463	204, 816, 928

¹ Imported under special permit from June 1, 1919, to Jan. 1, 1923.

TABLE 12.—*Importation of tree seeds under quarantine No. 37, year ended June 30, 1927*

[Figures indicate number of pounds]

Country of origin	Apple	Apricot	Banana	Cherry	Grape	Nut and palm	Onion (sets)	Ornamental and tree	Pear	Persimmon	Plum	Quince	Raspberry	Rose	Strawberry	Miscellaneous	Total
Africa								14									14
Australia						31,780		30									31,810
Austria	3,238			4,215		35		18,544	1,637		110	10			30	306	28,126
Brazil	5					931		10								6	941
Canada								1,039									1,050
Canary Islands						37		27									64
Ceylon						33											33
Chile								388									388
China						791		2,140	648	111	1			30		346	4,067
Cuba						616										2	618
Czechoslovakia				500				1,628								22	2,128
Denmark								477									499
England						1,401		12									1,413
France	13,668		32	1,953		430		4,087	723	18	235		1		1	3	21,151
Germany	37			5				3,694	37		18	10			23		3,824
Greece							1,300										1,300
Holland								52								22	74
Honduras						115											115
Hungary							1									10	11
India						1,974		8								6	1,988
Ireland								2									2
Italy								638								2	640
Jamaica						5											5
Japan	34	32			9	1,244		7,889	3,377	262	12	21		752		3	13,635
Mexico			90			5		127									222
New Zealand						204		86									290
Philippine Islands								25									25
Poland								328				12					340
Portugal						2		2									4
Scotland						50		333									383
Straits Settlements						20											20
Sweden								1									1
Trinidad						605											605
Yugoslavia				960			28,175				4,299						33,434
Total	16,982	32	122	7,633	9	40,278	29,477	41,581	6,422	391	4,675	53	1	835	1	728	149,220

TABLE 13.—*Distribution by States of bulbs, nursery stock, and seeds imported under regulation 3 of quarantine 37, year ended June 30, 1927*

State	Bulbs	Stocks, cuttings, and scions			Seeds					
		Fruit	Rose	Nut	Fruit	Nut and palm	Onion (sets)	Orna- mental and tree	Rose	Total
	Cases	Number	Number	Num- ber	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Alabama.....	272	55,000	2,000	-----	71	-----	-----	870	10	951
Alaska.....	5	-----	-----	-----	-----	-----	-----	-----	-----	-----
Arizona.....	10	-----	-----	6	-----	-----	-----	2	-----	2
Arkansas.....	102	-----	-----	-----	-----	2	-----	-----	-----	2
California.....	5,770	427,434	3,000	-----	409	13,382	-----	1,236	4	15,031
Colorado.....	778	-----	76,250	-----	-----	-----	-----	-----	-----	-----
Connecticut.....	2,113	1,592,055	1,565,915	2,000	335	803	-----	1,300	10	2,448
Delaware.....	214	93,000	4,000	-----	-----	-----	-----	-----	-----	-----
District of Columbia.....	600	-----	-----	-----	-----	60	-----	2	-----	62
Florida.....	162	50	-----	-----	2	2,745	-----	1,414	13	4,177
Georgia.....	813	20,000	-----	-----	1,313	529	-----	4,102	115	6,359
Idaho.....	330	30,000	-----	-----	-----	-----	-----	-----	-----	-----
Illinois.....	23,663	107,600	1,761,630	-----	-----	1,264	-----	3,705	-----	4,969
Indiana.....	1,002	471,500	580,500	-----	-----	3	-----	4	-----	7
Iowa.....	1,042	3,019,200	388,620	2,500	529	27	-----	571	15	1,142
Kansas.....	376	751,500	-----	-----	8,695	-----	-----	2,256	-----	10,951
Kentucky.....	394	-----	-----	-----	-----	-----	-----	30	-----	30
Louisiana.....	227	-----	-----	-----	-----	80	-----	76	-----	156
Maine.....	326	-----	-----	-----	-----	-----	-----	145	-----	145
Maryland.....	1,106	130,015	66,500	-----	-----	-----	-----	1	-----	1
Massachusetts.....	4,204	8,263	118,000	-----	-----	10	-----	461	4	475
Michigan.....	3,562	595,800	177,750	-----	-----	13	-----	115	24	142
Minnesota.....	1,698	-----	35,000	-----	-----	-----	-----	291	-----	291
Mississippi.....	158	-----	-----	-----	-----	-----	-----	3	-----	3
Missouri.....	2,237	219,000	30,000	46	4,552	11	1	61	-----	4,605
Montana.....	127	-----	-----	-----	-----	-----	-----	-----	-----	-----
Nebraska.....	348	-----	-----	-----	45	-----	-----	210	1	256
Nevada.....	2	-----	-----	-----	-----	-----	-----	-----	-----	-----
New Hampshire.....	139	-----	-----	-----	-----	-----	-----	379	-----	379
New Jersey.....	6,041	75	1,193,850	-----	10	1,317	28,160	621	78	30,186
New Mexico.....	10	-----	-----	-----	-----	-----	-----	-----	-----	-----
New York.....	55,718	5,604,686	2,816,505	17,301	8,257	8,869	16	7,702	448	25,292
North Carolina.....	259	150,500	-----	-----	5	1	-----	981	-----	987
North Dakota.....	103	-----	100	-----	-----	2	-----	6	10	18
Ohio.....	5,621	789,066	1,715,790	8,000	6	277	-----	493	-----	776
Oklahoma.....	173	43,000	2,000	-----	-----	-----	-----	-----	-----	-----
Oregon.....	996	69,247	-----	-----	472	133	-----	237	-----	842
Pennsylvania.....	15,993	210,850	345,750	2,100	7,831	7,341	1,300	13,176	103	29,751
Rhode Island.....	1,192	8,000	3,250	-----	-----	-----	-----	145	-----	145
South Carolina.....	98	-----	-----	-----	-----	6	-----	-----	-----	6
South Dakota.....	68	-----	-----	-----	1	-----	-----	-----	-----	1
Tennessee.....	922	244,000	20,000	-----	-----	52	-----	-----	-----	52
Texas.....	611	75,100	-----	-----	575	348	-----	244	-----	1,167
Utah.....	175	37,700	10,000	-----	-----	-----	-----	-----	-----	-----
Vermont.....	246	-----	-----	-----	-----	-----	-----	165	-----	165
Virginia.....	658	45,000	15,000	-----	60	5	-----	17	-----	82
Washington.....	1,745	-----	-----	-----	3,173	2,692	-----	227	-----	6,092
West Virginia.....	281	348	-----	-----	-----	-----	-----	-----	-----	-----
Wisconsin.....	1,861	600	70,100	-----	-----	-----	-----	331	-----	331
Wyoming.....	9	-----	-----	-----	-----	-----	-----	-----	-----	-----
Exported by permittee.....	283	-----	10,000	-----	-----	3	-----	2	-----	5
Total.....	144,873	14,798,589	12,011,510	31,953	36,321	40,275	29,477	41,581	835	148,492

¹ Does not include 728 pounds of miscellaneous seeds.

The record of entry under special permits issued under the provisions of regulation 14 of quarantine 37 for the purpose of keeping the country sup-

plied with new varieties and necessary propagating stock and to meet other technical and educational needs is given in Table 14.

TABLE 14.—*Special-permit importations, 1927, with combined total for the period 1920-1927*

Class of plant	Fiscal year 1927				Total, 1920-1927			
	Permits issued		Permits imported		Permits issued		Permits imported	
	Num- ber	Quantity	Num- ber	Quantity	Num- ber	Quantity	Num- ber	Quantity
Gladiolus.....	201	6, 134, 242	176	848, 761	1, 122	45, 901, 076	899	23, 447, 059
Dahlia.....	86	7, 626	81	5, 735	476	40, 086	392	26, 948
Iris, rhizomatous.....	129	13, 693	103	8, 625	973	231, 822	817	118, 610
Iris, bulbous.....	160	6, 915, 424	135	4, 174, 911	914	33, 452, 187	701	21, 072, 922
Other bulbs, rhizomes, and roots.....	156	1, 631, 653	137	889, 459	982	11, 191, 812	739	5, 472, 684
Peony.....	112	53, 878	101	24, 909	849	1, 299, 805	668	608, 289
Rose.....	117	22, 487	90	16, 491	792	173, 933	667	127, 488
Orchid.....	139	13, 535	128	11, 397	889	145, 217	764	106, 537
Ornamental.....	168	167, 262	146	157, 806	1, 030	2, 919, 753	814	1, 883, 881
Herbaceous.....	125	88, 553	107	76, 296	909	4, 565, 286	710	2, 824, 146
Fruit trees and small fruits.....	20	2, 721	19	2, 015	97	10, 244	62	4, 045
Narcissus.....	251	38, 955, 266	218	42, 799, 132	407	109, 423, 669	218	42, 799, 132
Total.....	-----	54, 006, 343	-----	49, 015, 537	-----	209, 354, 890	-----	101, 491, 741

During the year 1,453 such permits were issued authorizing the entry of 54,006,343 plants and bulbs; a total of 49,015,537 plants and bulbs was imported under 1,259 permits as compared with a total of 6,021,508 plants and bulbs imported during 1926. Narcissi were placed under the restrictions of regulation 14 at the beginning of the calendar year 1926 and their importation was responsible for most of this increase. The narcissi imported during the fiscal year 1927 arrived, and the permits authorizing their entry were issued during the calendar year 1926, some of the permits being issued before and some after the end of the 1926 fiscal year, June 30, 1926. A summary of special permits issued during the entire period of the quarantine to date is given in Table 15. The number of varieties considered has now reached a total of 37,308 (an increase of 5,000 during the year), of which 35,389 have been approved for entry.

TABLE 15.—*Special-permit importations, yearly totals, 1920-1927*

Fiscal year	Permits issued		Permits imported	
	Num- ber	Quantity	Num- ber	Quantity
1920.....	311	10, 752, 844	171	3, 484, 195
1921.....	622	13, 965, 013	411	8, 132, 634
1922.....	750	9, 573, 199	518	3, 344, 026
1923.....	897	15, 175, 003	719	10, 357, 406
1924.....	1, 107	15, 381, 621	862	12, 561, 306
1925.....	1, 235	9, 517, 913	1, 087	8, 575, 129
1926.....	1, 445	80, 982, 954	1, 200	6, 021, 508
1927.....	1, 453	54, 006, 343	1, 259	49, 015, 537
Total.....	7, 820	209, 354, 890	6, 227	101, 491, 741

Three classes of plants other than narcissus show heavy increases, while most of the remaining classes show heavy decreases in the quantities imported in 1927, as compared to importations in 1926, as is shown in Table 16.

TABLE 16.—*Special-permit material: Number of different varieties of plants requested and approved for fiscal years 1920-1927, and comparison of importations for fiscal years 1926 and 1927*

Class of plants	Number of varieties of plants requested and approved, 1920-1927			Comparison of 1926 and 1927 importations	
	Requested	Approved	Percentage approved	1926	1927
Gladiolus.....	1,427	1,310	91.80	1,880,054	848,761
Dahlia.....	2,583	2,445	94.66	2,216	5,735
Iris, rhizomatous.....	2,201	2,080	94.50	21,797	8,625
Iris, bulbous.....	483	483	100.00	2,453,408	4,174,911
Other bulbs, rhizomes and roots.....	2,472	2,428	98.22	948,883	889,459
Peony.....	1,712	1,470	85.86	108,743	24,909
Rose.....	3,403	3,043	89.42	28,556	16,491
Orchid.....	7,333	7,307	99.65	20,372	11,397
Ornamental.....	9,813	9,137	93.11	169,891	157,806
Herbaceous.....	4,685	4,507	96.20	386,462	76,296
Fruit trees and small fruits.....	263	250	95.06	1,126	2,015
Narcissus.....	933	929	99.57	-----	42,799,132
Total.....	37,308	35,389	94.86	6,021,508	49,015,537

In addition to the tables mentioned there has been prepared a table (Table 17) showing the distribution of the imported special-permit material by States. In addition to the fore-

going there were imported from Canada under regulation 15, quarantine 37, 413,259 bulbs, plants, trees, or cuttings, as compared to 128,336 during the fiscal year 1926.

TABLE 17.—*Distribution of special-permit material by States for fiscal years 1920-1927*

State	Gladiolus	Dahlia	Rhizomatous iris	Bulbous iris	Peony	Rose	Orchid	Ornamental, etc.	Narcissus	Total
Alabama.....	14,988	0	0	30,980	0	174	0	0	0	46,142
Arizona.....	4	14	0	0	0	9	14	2,275	0	2,316
Arkansas.....	0	0	0	18,000	0	0	0	0	0	18,000
California.....	1,816,620	4,413	26,403	10,047,924	2,168	21,734	29,832	1,910,381	4,700,811	18,560,286
Colorado.....	17,095	0	0	33,490	150	0	1,192	5,381	0	57,308
Connecticut.....	16,984	995	1,258	22,745	113	31,318	6	171,185	4,750	249,354
Delaware.....	2,000	0	22	700	16	0	327	5,238	5	8,308
District of Columbia.....	500	140	59	127	0	213	74	226	0	1,339
Florida.....	47,510	0	0	391,192	0	21	11	277,088	7,582,377	8,298,199
Georgia.....	9,210	360	181	128,485	0	0	0	2,988	2,251	143,475
Idaho.....	381	0	0	2,000	0	0	0	0	0	2,381
Illinois.....	3,233,385	85	13,239	881,390	43,968	9,737	545	218,301	36,900	4,437,550
Indiana.....	2,365,438	186	2,077	502,413	3,817	2,194	171	29,757	191	2,906,244
Iowa.....	110,478	0	0	10,000	23,143	0	0	14,062	250	157,933
Kansas.....	0	99	1,882	2,585	0	0	0	399	33	4,998
Kentucky.....	0	408	0	51,200	0	0	415	0	0	52,023
Louisiana.....	2,500	116	0	21,750	0	0	766	425	0	25,557
Maine.....	350	0	35	0	262	0	0	693	0	1,340
Maryland.....	23,057	312	128	275,575	19,780	500	378	8,745	128	328,603
Massachusetts.....	3,433,679	955	3,172	487,560	6,336	2,122	17,520	457,031	1,069	4,409,441
Michigan.....	12,278,974	3,395	3,106	495,822	78,128	290	530	522,562	1,381,975	14,764,782
Minnesota.....	82,177	49	1,005	0	7,418	160	519	35,237	0	126,505
Mississippi.....	6,500	0	9	49,776	0	0	0	27	0	56,312
Missouri.....	2,450	182	292	281,211	991	0	3,671	19,528	510	308,835
Montana.....	0	0	0	0	0	0	0	100	0	100
Nebraska.....	1,132	276	0	0	14	0	0	351	0	1,773
Nevada.....	0	0	0	0	0	0	0	0	0	0
New Hampshire.....	40,021	7	0	11,500	0	0	0	1,183	0	52,711
New Jersey.....	99,395	4,325	10,011	880,669	38,799	30,709	21,829	2,467,978	456,215	4,009,930
New Mexico.....	0	0	0	5,000	0	0	0	0	0	5,000
New York.....	1,825,963	3,681	28,179	1,808,478	184,796	15,074	18,324	2,710,796	6,104,561	12,694,852
North Carolina.....	3,973	82	0	667,622	0	0	0	739	235,315	907,733
North Dakota.....	21,915	0	0	0	7	1	0	0	0	21,923
Ohio.....	478,495	1,910	18,474	46,856	123,832	4,036	145	754,742	0	1,428,490
Oklahoma.....	510	0	0	14,000	0	0	0	198	0	14,708

TABLE 17.—*Distribution of special-permit material by States for fiscal years 1920-1927—Continued*

State	Gladiolus	Dahlia	Rhizomatous iris	Bulbous iris	Peony	Rose	Orchid	Orna-mental, etc.	Narcis-sus	Total
Oregon.....	48,412	1,286	1,408	383,708	2,651	1,140	0	37,519	330,811	806,935
Pennsylvania..	355,354	1,390	2,488	152,443	51,446	4,286	9,085	251,435	181,000	1,008,927
Rhode Island..	721	1,053	1,557	85,190	5,209	429	157	25,269	130,000	250,585
South Carolina.	0	0	0	30,000	0	0	0	3	8,569,500	8,599,503
South Dakota..	472	0	11	0	2,426	1,807	0	551	0	5,267
Tennessee.....	0	590	361	178,396	232	87	0	3,417	733,296	916,379
Texas.....	2,000	1	50	663,031	0	290	6	28,521	4,465,970	5,159,869
Utah.....	0	0	0	17,000	0	0	0	4,747	11,100	32,847
Vermont.....	6,771	0	36	8,010	2,359	0	0	1,597	0	18,773
Virginia.....	16,000	53	2	1,199,754	1,340	0	6	42,666	3,206,482	4,466,303
Washington.....	26,084	319	2,697	1,080,975	3,515	637	0	122,655	4,478,032	5,714,914
West Virginia..	0	0	0	4,000	0	0	0	36	0	4,036
Wisconsin.....	55,559	266	468	107,950	2,788	520	1,014	48,724	185,600	402,889
Wyoming.....	0	0	0	0	0	0	0	0	0	0
Total.....	26,447,059	26,948	118,610	21,072,922	608,289	127,488	106,537	10,184,756	42,799,132	101,491,741

In addition to the foregoing, there were imported from Canada, under regulation 15, quarantine 37, in excess of 400,000 plants.

IMPORTATIONS OF COTTON AND COTTON PRODUCTS

Tables 18 to 21 indicate, respectively, the importations of cotton, cotton waste, bagging, cottonseed, seed cotton, and cottonseed products during the year. The actual number of bales of

cotton, cotton waste, and bagging is indicated, but inasmuch as bales vary in size, they are referred to as running bales.

In addition to the commercial importations indicated below, the board supervised the entry and disinfection of 1,070 cotton samples, including 7 packages of linters, imported by freight or express, 38 cotton-waste samples imported by freight or express, and 13,926 cotton and cotton-waste samples and linters imported by parcel post.

TABLE 18.—*Importation of ginned cotton, by country of growth and port of entry, 1926-27*

[Running bales]

Country	Boston	Bu-falo	Cal-exico	De-troit	El Paso	Gal-veston	Ma-lone	New Or-leans	New-port	New York	Niag-ara Falls
Algeria.....	10										
Anglo-Egyptian Sou-dan.....	171										
Brazil.....										37	
British West Indies..										1,106	
Chile.....										3	
China.....	1,988									3,296	
Cuba.....										39	
Dominican Republic..										233	
Dutch East Indies....	1,250									2,075	
Dutch Guiana.....										16	
Egypt.....	150,626									8,262	
Haiti.....										1,023	
India.....	8,752									14,127	
Japan.....										50	
Mexico.....			90,860		5,012					66,941	
Peru.....	1,299									98,790	
Porto Rico.....										2,971	
Salvador.....										12	
Uganda.....	36										
United States (re-turned).....	965	39		50		292	10	22	2,293	27	103
Unknown.....	312										
Total.....	165,409	39	90,860	50	5,012	292	10	22	2,293	199,008	103

TABLE 18.—*Importation of ginned cotton, by country of growth and port of entry, 1926-27—Continued*

Country	Norfolk	Philadelphia	Portland	Presidio	Providence	Richford	Rouses Point	Saint Albans	San Francisco	Seattle	Vanceboro	Total
Algeria.....												10
Anglo-Egyptian Sudan.....												171
Brazil.....												37
British West Indies.....												1,106
Chile.....												3
China.....			50						20,176	6,988		32,498
Cuba.....												39
Dominican Republic.....												233
Dutch East Indies.....												3,325
Dutch Guiana.....												16
Egypt.....								¹ 172				159,060
Haiti.....												1,023
India.....									400			23,279
Japan.....												50
Mexico.....				150								162,963
Peru.....												100,089
Porto Rico.....												2,971
Salvador.....												12
Uganda.....												36
United States (returned).....	3	3			14	189	121	142			789	5,062
Unknown.....												312
Total.....	3	3	50	150	14	189	121	314	20,576	6,988	789	492,295

¹ Previously entered, disinfected, and exported.² Includes 6,938 bales of linters.TABLE 19.—*Importation of cotton waste, by country of origin and port of entry, 1926-27*

[Running bales]

Country	Baltimore	Buffalo	Boston	Charleston	Detroit	El Paso	Galveston	Los Angeles	New Orleans	New port	New York
Austria.....											388
Belgium.....			35				144		128		1,114
Brazil.....			30								
Canada.....		38	1,067		32					431	1
Ceylon.....											214
China.....											145
Cuba.....											8
England.....			4,272	104					75		975
France.....			417						10		1,222
Germany.....			352	438			99				2,034
Holland.....			2,189				137	22			361
India.....	100		50								4,002
Italy.....			75						22		1,304
Japan.....			401								1,497
Mexico.....						89					558
Scotland.....	9										2
Spain.....			86								128
Switzerland.....			1,545								232
United States (returned).....			16								
Wales.....											131
Total.....	109	38	10,535	542	32	89	380	22	235	431	14,316

TABLE 19.—*Importation of cotton waste, by country of origin and port of entry, 1926-27—Continued*

Country	Niagara Falls	Philadelphia	Port Huron	Portland	Richford	Rouses Point	Saint Albans	San Francisco	Savannah	Seattle	Total
Austria											388
Belgium		213									1,634
Brazil											30
Canada	100	5	210		7	11	757				2,659
Ceylon		166									380
China		70						407		241	863
Cuba											8
England		1,442							30		6,898
France		575									2,224
Germany		1,610									4,533
Holland		533									3,242
India		1,900									6,052
Italy		694									2,095
Japan		550		1				2,638		4,426	9,513
Mexico											647
Scotland		97									108
Spain											214
Switzerland		363									2,140
United States (returned)							3				19
Wales											131
Total	100	8,218	210	1	7	11	760	3,045	30	4,667	43,778

TABLE 20.—*Importation of bagging, by country of origin and port of entry, 1926-27*

[Running bales]

Country	Baltimore	Boston	Buffalo	Charleston	Detroit	Galveston	Houston	Los Angeles	Mobile	New Orleans
Austria				148						609
Belgium	5,853	3,075		387			49			3,243
Canada	810	107	45		1,977					1,319
Cuba										1,140
Denmark	1,000								400	2,902
England	1,742	2,634		657		1,296	3,081			5,269
Finland	427									
France	2,688	656		27			860			7,126
Germany	2,135	760		459						5,716
Holland	939	2,090		60		740	2,420		200	9,383
Italy	55	609					1,431			1,093
Japan								60		
Norway		55								
Scotland	212	1,067								19
Spain										874
Switzerland		855		336						
Wales	111									
Total	15,972	11,908	45	2,074	1,977	2,036	7,841	60	600	38,693

TABLE 20.—*Importation of bagging by country of origin and port of entry, 1926-27—Continued*

Country	New York	New-port	Norfolk	Philadelphia	Port Huron	Rouses Point	San Francisco	Savannah	Seattle	Total
Algeria.....	1,207	-----	-----	87	-----	-----	-----	-----	-----	1,294
Austria.....	749	-----	3,060	-----	-----	-----	385	1,032	-----	5,983
Belgium.....	3,770	-----	3,163	526	-----	-----	22	1,496	-----	21,584
Canada.....	7,894	42	-----	276	4,379	53	-----	-----	-----	16,902
China.....	4	-----	-----	-----	-----	-----	886	-----	-----	890
Cuba.....	133	-----	-----	-----	-----	-----	-----	-----	-----	1,273
Denmark.....	10,071	-----	-----	144	-----	-----	-----	-----	-----	14,517
Egypt.....	1,080	-----	-----	58	-----	-----	-----	-----	-----	1,138
England.....	6,043	-----	14,559	4,321	-----	-----	-----	3,083	-----	42,685
Finland.....	-----	-----	-----	-----	-----	-----	-----	-----	-----	427
France.....	6,425	-----	957	1,270	-----	-----	47	194	-----	20,250
Germany.....	6,988	-----	2,786	62	-----	-----	171	1,714	-----	20,791
Greece.....	130	-----	-----	-----	-----	-----	-----	-----	-----	130
Holland.....	5,863	-----	5,687	1,211	-----	-----	-----	1,027	-----	29,620
India.....	135	-----	-----	281	-----	-----	-----	-----	-----	416
Ireland.....	5,947	-----	-----	-----	-----	-----	-----	-----	-----	5,947
Italy.....	4,153	-----	-----	246	-----	-----	-----	-----	-----	7,587
Japan.....	752	-----	-----	200	-----	-----	3,949	-----	7,304	12,265
Malta.....	12	-----	-----	-----	-----	-----	-----	-----	-----	12
Mexico.....	242	-----	-----	-----	-----	-----	-----	-----	-----	242
Morocco.....	51	-----	-----	-----	-----	-----	-----	-----	-----	51
Norway.....	723	-----	-----	-----	-----	-----	-----	-----	-----	778
Scotland.....	2,109	-----	141	55	-----	-----	-----	49	-----	3,652
Spain.....	2,079	-----	-----	116	-----	-----	-----	-----	-----	3,069
Switzerland.....	339	-----	531	-----	-----	-----	-----	-----	-----	2,061
Wales.....	-----	-----	-----	-----	-----	-----	-----	-----	-----	111
Total.....	66,899	42	30,884	8,853	4,379	53	5,460	8,595	7,304	213,675

TABLE 21.—*Importation, in tons, of cottonseed, seed cotton, and cottonseed hulls, cake, and meal, 1926-27*

Port	Cotton-seed	Seed cotton	Cotton-seed hulls	Cotton-seed cake	Cotton-seed meal	Port	Cotton-seed	Seed cotton	Cotton-seed hulls	Cotton-seed cake	Cotton-seed meal
Boston.....	-----	-----	-----	3	428	Laredo.....	-----	-----	-----	814	-----
Calexico.....	15,783	-----	579	-----	-----	Yuma.....	-----	33	-----	-----	-----
Eagle Pass.....	-----	-----	-----	4,760	-----	Total.....	15,788	133	1,579	5,577	428

¹ Entry of cottonseed and seed cotton grown in the Imperial Valley, Lower California, Mexico, is allowed under permit.

IMPORTATIONS OF FRUITS AND VEGETABLES

Tables 22 and 23 indicate, respectively, the fruits and vegetables im-

ported under permit and inspection during the fiscal year by countries of origin and by ports of entry.

TABLE 22.—*Fruits and vegetables imported during year ended June 30, 1927, by countries of origin*

[Quarantine 56 unless otherwise designated]

Kind	Country and quantity	Total
Apple.....pounds	Germany, 209; Norway, 45; Sweden, 80.....	334
Artichoke.....do	Mexico, 30.....	30
Asparagus.....do	Argentina, 15,200.....	15,200
Avocado.....do	Colombia (Santa Marta district), 30,202; Cuba, 5,261,367; Dominica, British West Indies, 22,944; Dominican Republic, 3,050; Jamaica, 4,070; Mexico (seeds removed), 54,214; St. Lucia, British West Indies, 400.....	5,376,247
Ayale (Crescentia sp.).....do	Mexico, 593.....	593
Banana.....bunches	Colombia, 2,286,506; Costa Rica, 5,124,799; Cuba, 3,135,238; Dominican Republic, 2; Guadeloupe, French West Indies, 204; Guatemala, 6,633,004; Honduras, 15,131,821; British Honduras, 175,800; Jamaica, 13,807,440; Mexico, 6,484,692; Nicaragua, 1,800,614; Panama (including Canal Zone), 4,817,817; St. Lucia, British West Indies, 38,693.....	59,436,630
Bean (green):		
Lima.....pounds	Cuba, 1,033,241; Mexico, 11,023.....	1,044,264
String.....do	Cuba, 40,626; Mexico, 427,986.....	468,612
Beet.....do	Bermuda, 414,471; Holland, 9,931; Mexico, 219,761.....	644,163
Berry (Rubus).....do	Norway, 600.....	600
Cabbage.....do	Holland, 3,008,548; Mexico, 41,504.....	3,050,052
Cacao bean pod.....do	Costa Rica, 2,227; Jamaica, 86; Venezuela, 45.....	2,358
Carrot.....do	Bermuda, 1,887,529; Holland, 50,000; Mexico, 470,747.....	2,408,276
Cassava.....do	China, 1,600; Cuba, 246,132; Dominican Republic, 7,944.....	255,676
Cauliflower.....do	Cuba, 250; Mexico, 1,888.....	2,138
Celery.....do	Bermuda, 3,705,289; Mexico, 989.....	3,706,278
Chayote.....do	Cuba, 550; Dominican Republic, 7,662; Mexico, 3,712.....	11,924
Cherry:		
Fresh.....do	Argentina, 5,690.....	5,690
Dried (sour).....do	Italy, 1,371,307; Yugoslavia, 81,065.....	1,452,372
Cipollino.....do	Italy, 2,054,342.....	2,054,342
Clover top.....do	Mexico, 1,042.....	1,042
Citrus medica.....do	Greece, 2,293; Italy, 422; Palestine, 22,297; Syria, 220.....	25,232
Crosnes.....do	Belgium, 808.....	808
Cucumber.....do	Bermuda, 85; Cuba, 1,014,886; Mexico, 310,141.....	1,325,112
Dasheen (includes colocasia, caladium, inhame, malanga, and taro), pounds.	Azores, 264,357; China, 728,520; Dominica, British West Indies, 310; Dominican Republic, 250,070; Japan, 334,701; Mexico, 14,200; St. Lucia, British West Indies, 9,210.....	1,601,368
Eggplant.....pounds	Cuba, 6,085,183; Dominican Republic, 180; Mexico, 495,398; Virgin Islands, 6,730.....	6,587,491
Endive.....do	Belgium, 1,651,862; England, 27,818; Holland, 700.....	1,680,380
Fennel.....do	Bermuda, 924.....	924
Garlic.....do	Azores, 2,336; Chile, 437,412; China, 4,160; Egypt, 33,510; Italy, 419,906; Mexico, 323,603; Spain, 7,512.....	1,228,439
Ginger (crude).....do	China, 438,782; Cuba, 1,622; Dominican Republic, 4,262; Jamaica, 350; Japan, 1,610; Virgin Islands, 40.....	446,666
Grapefruit.....do	Cuba, 16,524,177; Jamaica, 22,205.....	16,546,382
Grape:		
Fresh (not hot-house), pounds.	Argentina, 1,693,359; Chile, 500,363; Mexico, 1,727.....	2,195,449
Hothouse.....pounds	Belgium, 324,148; England, 300.....	324,448
Processed.....do	Italy, 6,870.....	6,870
Waste.....do	Italy, 5,547.....	5,547
Horse-radish.....do	Germany, 766,803.....	766,803
Husk tomato.....do	Mexico, 47,583.....	47,583
Jicama.....do	Mexico, 33,881.....	33,881
Kale.....do	Bermuda, 907,629.....	907,629
Kohl-rabi.....do	Bermuda, 590; Mexico, 81.....	671
Kudzu.....do	China, 214,731.....	214,731
Lemon.....crates	Algeria, 100; Argentina, 15; Egypt, 1; Italy, 567,388; Mexico, 35.....	567,539
Lettuce.....pounds	Bermuda, 36,368; Mexico, 229,187.....	265,555
Lily bulb (edible).....do	China, 18,477; Japan, 400.....	18,877
Lime (sour).....do	Costa Rica, 10,854; Cuba, 850; Dominica, British West Indies, 3,063,415; Dominican Republic, 75; Haiti, 840; Italy, 79,500; Jamaica, 289,007; Mexico, 1,905,426; St. Lucia, British West Indies, 145,430; Trinidad, British West Indies, 11,550.....	5,506,947
Melon.....do	Argentina, 755,228; Chile, 434,939; Italy, 24,186; Mexico, 1,448,172; Spain, 168,653.....	2,831,178
Mint.....do	Bermuda, 360; Mexico, 512.....	872
Mustard.....do	Bermuda, 1,029; Mexico, 47,837.....	48,866
Nectarine.....do	Belgium, 123; Chile, 17,976.....	18,099

TABLE 22.—*Fruits and vegetables imported during year ended June 30, 1927, by countries of origin—Continued*

Kind	Country and quantity	Total
Nuts (in the shell): ¹		
Acorn.....pounds...	Greece, 1,188,844; Italy, 893,397; Turkey, 1,192,050.....	6, 274, 291
Chestnut.....do....	Corsica, 1,667; France, 70,625; Italy, 22,977,844; Spain, 1,558,086.	24, 608, 222
Filbert.....do....	Greece, 6,972; Italy, 5,188,137; Russia, 100,310; Spain, 853; Turkey, 27,033.	5, 323, 305
Walnut.....do....	France, 1,804,759; Germany, 87,840; Italy, 11,791,951; Poland, 11,020; Rumania, 2,064,837; Russia, 8,782; Turkey, 225,831; Yugoslavia, 1,629.	15, 996, 649
Okra ²do....	Cuba, 639,590; Dominican Republic, 20.....	639, 610
Onion.....do....	Antigua, British West Indies, 49,600; Australia, 189,698; Azores, 4,101; Bermuda, 501,511; Chile, 4,575,124; Cuba, 13,755; Denmark, 220; Dominica, British West Indies, 3,770; Egypt, 56,295,830; England, 196; Germany, 67,132; Holland, 1,047,513; Italy, 2,163,780; Japan, 119,048; Mexico, 461,771; Montserrat, British West Indies, 181,100; Rumania, 12,350; Spain, 63,092,924; Virgin Islands, 214,240.	128, 998, 663
Orange:		
Under quarantine 56, pounds.	Cuba, 59,400; Dominica, British West Indies, 60; Dominican Republic, 9,213; Jamaica, 34,890.	103, 563
Mandarin (quarantine 28), pounds.	Japan, 1,069,416.....	1, 069, 416
Pachyrhizus.....pounds...	China, 47,900.....	47, 900
Parsley.....do....	Bermuda, 1,020,540; Mexico, 24,555.....	1, 045, 095
Parsnip.....do....	Holland, 310,915; Mexico, 110.....	311, 025
Pea.....do....	Cuba, 820; Mexico, 14,277,129.....	14, 277, 949
Peach.....do....	Argentina, 136,797; Belgium, 972; Chile, 59,002.....	196, 771
Pear.....do....	Argentina, 35,980; Sweden, 15.....	35, 995
Pepper.....do....	Bahamas, 40; Cuba, 8,619,977; Dominican Republic, 60; Haiti, 1,060; Jamaica, 3,950; Mexico, 8,968,473; Virgin Islands, 14,570.	17, 608, 130
Pigweed.....do....	Mexico, 295.....	295
Pineapple.....crates...	Antigua, British West Indies, 2; Azores, 48; Costa Rica, 18,130; Cuba, 1,195,741; Dominican Republic, 9; Haiti, 1,767; Honduras, 52; Mexico, 28,899; Panama (including Canal Zone), 431; Union of South Africa, 20.	1, 245, 099
Plantain.....bunches...	Cuba, 329,520; Dominican Republic, 1,539; Honduras, 97,908; British Honduras, 36,525; Mexico, 39; Panama, 36; St. Lucia, British West Indies, 5.	465, 572
Plum.....pounds...	Argentina, 32,372; Chile, 952.....	33, 324
Potato:		
Under quarantine 56, pounds.	Bermuda, 5,815,466.....	5, 815, 466
Under potato regulations (order of Dec. 22, 1913), pounds.	Cuba, 4,439,810; Mexico, 1,805,846.....	6, 245, 656
Prickly pear.....pounds...	Mexico, 3,095.....	3, 095
Pumpkin.....do....	Cuba, 55,664; Dominican Republic, 46,012; Jamaica, 1,250; Mexico, 10,419.	113, 345
Purslane.....do....	Mexico, 31.....	31
Quince.....do....	Argentina, 71.....	71
Radish.....do....	Mexico, 45,310.....	45, 310
Roselle.....do....	Mexico, 1,310.....	1, 310
Sea onion.....do....	Denmark, 690.....	690
Sorrel.....do....	Bermuda, 1,932.....	1, 932
Spinach.....do....	Bermuda, 120; Mexico, 99,996.....	100, 116
Squash.....do....	Cuba, 436,405; Mexico, 85,806.....	522, 211
Strawberry.....do....	Mexico, 492.....	492
Tamarind bean pod.....do....	Antigua, British West Indies, 20,041; Barbados, British West Indies, 380; Dominican Republic, 964; Dutch Guiana, 95; Mexico, 17.	21, 497
Tangerine.....do....	Argentina, 15,692; Cuba, 210.....	15, 902
Tomato.....do....	Argentina, 13,228; Bahamas, 5,804,396; Cuba, 12,884,437; Dominican Republic, 30; England, 50; Haiti, 6,098; Mexico, 105,701,086; Virgin Islands, 3,800.	124, 413, 125
Turnip ³do....	Bermuda, 23,671; Holland, 208,732; Mexico 125,807.....	358, 210
Vaccinium (cranberry, etc.), pounds.	Newfoundland, 222,483; Norway, 660; Poland, 28,868; Sweden, 110.	252, 121
Water chestnut.....pounds...	China, 1,547,071; Japan, 1,400.....	1, 548, 471
Water cress.....do....	Mexico, 5,599.....	5, 599
Water-lily root.....do....	China, 71,522; Japan, 2,000.....	73, 522
Watermelon.....do....	Bahamas, 1,045; Chile, 2,458; Cuba, 24,000; Jamaica, 290; Mexico, 581,868; Peru, 1,221.	610, 882

¹ The permit requirements for the entry of walnuts and filberts from Europe were removed June 1, 1927.² Permits authorizing entry of okra from the West Indies, except Cuba, were revoked November 20, 1926, on account of the pink bollworm.³ Permits authorizing entry of turnips from Holland were revoked April 8, 1927, on account of the turnip gall weevil.

TABLE 23.—*Fruits and vegetables imported during year ended June 30, 1927, by ports of entry*

[Quarantine 56 unless otherwise designated]

Kind	Port and quantity	Total
Apple.....pounds..	New York, 334.....	334
Artichoke.....do....	Laredo, 30.....	30
Asparagus.....do....	New York, 15,200.....	15,200
Avocado.....do....	Brownsville (seeds removed), 384; Eagle Pass (seeds removed), 2,328; El Paso (seeds removed), 5,501; Key West, 893,992; Laredo (seeds removed), 45,988; New Orleans, 1,657,057; New York, 1,049,984; Nogales (seeds removed), 13; Tampa, 1,721,000.	5,376,247
Ayale (Crescentia sp.).....do....	Nogales, 593.....	593
Banana.....bunches..	Baltimore, 2,662,029; Boston, 3,651,692; Charleston, 657,409; Eagle Pass, 2,004; El Paso, 421,549; Galveston, 1,005,500; Jacksonville, 15,700; Key West, 16,470; Laredo, 9,801; Los Angeles, 524,672; Miami, 268,401; Mobile, 3,612,080; New Orleans, 23,497,075; New York, 17,521,442; Nogales, 95,508; Philadelphia, 5,012,688; San Francisco, 26,565; Tampa, 433,045.	59,436,630
Bean (green):		
Lima.....pounds..	Laredo, 704; New York, 1,033,241; Nogales, 9,369; San Ysidro, 950.	1,044,264
String.....do....	Brownsville, 237,032; Calexico, 273; Douglas, 5,109; Eagle Pass, 1,445; El Paso, 49,541; Laredo, 56,667; New York, 40,626; Nogales, 33,587; San Ysidro, 44,332.	468,612
Beef.....do....	Douglas, 14,375; Eagle Pass, 2,897; El Paso, 189,849; New York, 424,402; Nogales, 12,637; San Ysidro, 3.	644,163
Berry (Rubus).....do....	New York, 600.....	600
Cabbage.....do....	Calexico, 2,392; Douglas, 13,031; Eagle Pass, 14; El Paso, 5,512; Laredo, 2,365; New York, 3,008,548; Nogales, 16,203; San Ysidro, 1,982.	3,050,052
Cacao bean pod.....do....	New York, 2,358.....	2,358
Carrot.....do....	Calexico, 345; Douglas, 24,738; Eagle Pass, 1,622; El Paso, 428,539; New York, 1,937,523; Nogales, 15,503.	2,408,276
Cassava.....do....	Chicago, 1,100; Key West, 28,825; New York, 197,181; Seattle, 500; Tampa, 23,070.	255,676
Cauliflower.....do....	Calexico, 20; Douglas, 708; Eagle Pass, 32; New York, 250; Nogales, 1,122; San Ysidro, 6.	2,138
Celery.....do....	Douglas, 875; New York, 3,705,289; Nogales, 114.....	3,706,278
Chayote.....do....	El Paso, 3,260; Laredo, 450; New Orleans, 405; New York, 7,807; Nogales, 2.	11,924
Cherry:		
Fresh.....do....	New York, 5,690.....	5,690
Dried (sour).....do....	Boston, 121,934; New York, 1,278,741; Philadelphia, 51,697.....	1,452,372
Cipollino.....do....	Boston, 120,337; Los Angeles, 22,000; New York, 1,912,005.....	2,054,342
Clover top.....do....	Douglas, 1,042.....	1,042
Citrus medica.....do....	Baltimore, 4,650; New York, 20,582.....	25,232
Crosnes.....do....	New York, 808.....	808
Cucumber.....do....	Calexico, 1,001; Douglas, 2,952; Eagle Pass, 152; El Paso, 175; Key West, 1,915; New Orleans, 9,860; New York, 1,003,156; Nogales, 303,694; San Ysidro, 2,167; Tampa, 40.	1,325,112
Dasheen (includes colocasia, caladium, inhame, malanga, and taro), pounds.	Boston, 17,730; Calexico, 14,200; Chicago, 4,800; Los Angeles, 20,600; New York, 373,140; Portland, 5,300; Providence, 264,357; San Francisco, 681,033; Seattle, 218,958; Tacoma, 1,250.	1,601,368
Eggplant.....pounds..	Calexico, 340; Douglas, 1,221; Key West, 27,650; Laredo, 18,695; Los Angeles, 30,321; New Orleans, 936,244; New York, 5,119,249; Nogales, 443,961; Tampa, 9,800.	6,587,491
Endive.....do....	New York, 1,680,380.....	1,680,380
Fennel.....do....	New York, 924.....	924
Garlic.....do....	Boston, 13,200; Calexico, 832; Douglas, 4,570; Eagle Pass, 627; El Paso, 13,809; Laredo, 275,517; New Orleans, 40,938; New York, 867,899; Nogales, 4,551; Providence, 2,336; San Francisco, 4,160.	1,228,439
Ginger (crude).....do....	Boston, 4,200; Chicago, 2,800; Los Angeles, 8,200; New York, 65,767; San Francisco, 287,667; Seattle, 78,032.	446,666
Grapefruit.....do....	Boston, 12,460; Chicago, 2,487,100; Cincinnati, 2,193,529; New York, 10,024,518; Philadelphia, 15; St. Louis, 1,828,760.	16,546,382
Grape:		
Fresh (not hothouse), pounds.	Eagle Pass, 1,566; Laredo, 138; New York, 2,193,722; Nogales, 23.	2,195,449
Hothouse.....pounds..	New York, 324,448.....	324,448
Processed.....do....	New York, 6,870.....	6,870
Waste.....do....	New York, 5,547.....	5,547
Horse-radish.....do....	New York, 757,412; Philadelphia, 9,391.....	766,803
Husk tomato.....do....	Brownsville, 545; El Paso, 47,038.....	47,583
Jicama.....do....	El Paso, 33,531; Nogales, 350.....	33,881
Kale.....do....	New York, 907,629.....	907,629
Kohl-rabi.....do....	Calexico, 45; Douglas, 36; New York, 590.....	671
Kudzu.....do....	Boston, 3,526; Los Angeles, 12,700; New York, 95,400; Portland, 200; San Francisco, 64,339; Seattle, 38,566.	214,731

TABLE 23.—Fruits and vegetables imported during year ended June 30, 1927, by ports of entry—Continued

Kind	Port and quantity	Total
Lemon.....crates	Boston, 1,552; El Paso, 2; New Orleans, 95,720; New York, 470,230; Nogales, 30; Philadelphia, 2; San Ysidro, 3.	567,539
Lettuce.....pounds	Douglas, 24,975; Eagle Pass, 5,593; El Paso, 19,408; New York, 36,368; Nogales, 179,149; San Ysidro, 2.	265,555
Lily bulb (edible).....do	Boston, 2,754; Chicago, 300; New York, 3,100; San Francisco, 5,898; Seattle, 6,825.	18,877
Lime (sour).....do	Boston, 8,611; Brownsville, 129; Charleston, 7,650; Eagle Pass, 297,026; El Paso, 29,467; Laredo, 1,209,518; Los Angeles, 356,517; New Orleans, 175,438; New York, 3,403,039; Nogales, 5,433; Philadelphia, 3; San Francisco, 13,666; Tampa, 450.	5,506,947
Melon.....do	Boston, 500; Calexico, 199,157; Douglas, 657; Eagle Pass, 10; Laredo, 470; New York, 1,382,506; Nogales, 1,247,878.	2,831,178
Mint.....do	Calexico, 168; Douglas, 114; Eagle Pass, 8; El Paso, 222; New York 360.	872
Mustard.....do	Calexico, 7,450; Douglas, 11,524; El Paso, 13,700; New York, 1,029; Nogales, 15,163.	48,866
Nectarine.....do	New York, 18,099	18,099
Nuts (in the shell): ¹		
Acorn.....do	New York, 6,274,291.	6,274,291
Chestnut.....do	Boston, 1,323,252; New York, 23,264,903; Philadelphia, 2,067; San Francisco, 13,000.	24,608,222
Filbert.....do	Baltimore, 30,990; Boston, 466,909; New York, 4,501,525; Philadelphia, 114,391; San Francisco, 209,490.	5,323,305
Walnut.....do	Boston, 1,204,254; New York, 14,771,515; Philadelphia, 10,880; San Francisco, 10,000.	15,996,649
Okra ²do	Key West, 16,850; Miami, 450; New Orleans, 323,231; New York, 294,624; Tampa, 4,455.	639,610
Onion.....do	Boston, 18,077,233; Calexico, 1,704; Douglas, 43,364; Eagle Pass, 1,411; El Paso, 316,204; Laredo, 51,440; New Orleans, 8,818; New York, 109,805,148; Nogales, 42,531; Philadelphia, 109,116; Portland, 223,830; Providence, 4,101; San Francisco, 55,487; San Ysidro, 17; Seattle, 253,259.	128,998,663
Orange:		
Under quarantine 56, pounds.	Boston, 2,520; Chicago, 45,220; New York, 55,515; Philadelphia, 8.	103,563
Mandarin (quarantine 25), pounds.	Seattle, 959,616; Tacoma, 109,800	1,069,416
Pachyrhizus.....pounds	San Francisco, 47,900	47,900
Parsley.....do	Douglas, 1,636; Eagle Pass, 99; El Paso, 22,810; New York, 1,020,540; Nogales, 10.	1,045,095
Parsnip.....do	El Paso, 110; New York, 310,915.	311,025
Pea.....do	Calexico, 2,521; Douglas, 1,709; Eagle Pass, 291; El Paso, 656; Laredo, 1,030; Los Angeles, 5,100; New York, 820; Nogales, 14,165,560; San Diego, 46,080; San Ysidro, 54,292.	14,277,949
Peach.....do	New York, 196,771	196,771
Pear.....do	New York, 35,995	35,995
Pepper.....do	Brownsville, 20,089; Calexico, 544; Del Rio, 8,003; Douglas, 22,945; Eagle Pass, 53,804; El Paso, 496,726; Key West, 90,214; Laredo, 241,212; Los Angeles, 10,442; Miami, 810; New Orleans, 375,594; New York, 8,162,074; Nogales, 8,114,248; San Ysidro, 160; Tampa, 10,965.	17,605,130
Pigweed.....do	Douglas, 295	295
Pineapple.....crates	Boston, 3,659; Douglas, 41; El Paso, 27,915; Key West, 932,314; Laredo, 936; Miami, 250; Mobile, 200; New Orleans, 55,039; New York, 209,379; Nogales, 7; Providence, 48; San Francisco, 85; Tampa, 15,226.	1,245,099
Plantain.....bunches	Boston, 500; Key West, 135,891; Miami, 21,047; New Orleans, 37,193; New York, 47,110; Nogales, 22; Tampa, 223,809.	465,572
Plum.....pounds	New York, 33,324	33,324
Potato:		
Under quarantine 56, pounds.	New York, 5,815,466	5,815,466
Under potato regulations (order of Dec. 22, 1913), pounds.	Calexico, 60; Douglas, 1,663,358; El Paso, 17,394; Key West, 264,790; New Orleans, 539,510; New York, 3,635,510; Nogales, 125,034.	6,245,656
Prickly pear.....pounds	Eagle Pass, 70; El Paso, 1,440; Laredo, 1,585	3,095
Pumpkin.....do	Calexico, 310; Douglas, 2,299; Eagle Pass, 4,236; Key West, 27,402; Laredo, 3,540; New York, 63,042; Nogales, 34; Tampa, 12,482.	113,345
Purslane.....do	Douglas, 31	31
Quince.....do	New York, 71	71
Radish.....do	Calexico, 346; Douglas, 8,924; Eagle Pass, 1,136; El Paso, 24,719; Nogales, 10,184; San Ysidro, 1.	45,310
Roselle.....do	Nogales, 1,310	1,310
Sea onion.....do	New York, 690	690
Sorrel.....do	New York, 1,932	1,932
Spinach.....do	Calexico, 1,498; Douglas, 21,547; Eagle Pass, 138; El Paso, 56,318; New York, 120; Nogales, 20,494; San Ysidro, 1.	100,116

¹ The permit requirements for the entry of walnuts and filberts from Europe were removed June 1, 1927² Permits authorizing entry of okra from the West Indies, except Cuba, were revoked November 20, 1926, on account of the pink bollworm.

TABLE 23.—*Fruits and vegetables imported during year ended June 30, 1927, by ports of entry—Continued*

Kind	Port and quantity	Total
Squash.....do.....	Brownsville, 210; Calexico, 1,445; Douglas, 9,394; El Paso, 38,111; Key West, 80; Los Angeles, 180; Miami, 1,230; New Orleans, 8,800; New York, 426,295; Nogales, 33,001; San Diego, 1,340; San Ysidro, 2,125.	522, 211
Strawberry.....do.....	Laredo, 492.	492
Tamarind bean pod.....do.....	Eagle Pass, 2; New York, 21,480; Nogales, 15.	21, 497
Tangerine.....do.....	New York, 15,902.	15, 902
Tomato.....do.....	Brownsville, 33,796; Calexico, 44,118; Del Rio, 3,771; Douglas, 23,823; Eagle Pass, 60,994; El Paso, 169,919; Galveston, 20,000; Key West, 501,898; Laredo, 904,900; Los Angeles, 2,953,026; Miami, 385,553; New Orleans, 2,172,247; New York, 15,805,354; Nogales, 99,684,440; San Diego, 397,376; San Francisco, 1,167,860; San Ysidro, 61,515; Tampa, 22,535.	124, 413, 125
Turnip ³do.....	Calexico, 295; Douglas, 14,174; Eagle Pass, 844; El Paso, 98,207; New York, 232,403; Nogales, 12,285; San Ysidro, 2.	358, 210
Vaccinium (cranberry, etc.), pounds.	Boston, 21,200; New York, 230,811; San Francisco, 110.	252, 121
Water chestnut.....do.....	Boston, 30,525; Chicago, 35,000; Los Angeles, 35,660; New York, 295,100; Portland, 400; San Francisco, 612,724; Seattle, 539,062.	1, 548, 471
Water cress.....do.....	Douglas, 3,440; Eagle Pass, 7; Nogales, 2,151; San Ysidro, 1.	5, 599
Water-lily root.....do.....	Boston, 1,480; Chicago, 2,000; Los Angeles, 300; New York, 2,360; San Francisco, 41,964; Seattle, 25,418.	73, 522
Watermelon.....do.....	Brownsville, 64,804; Calexico, 89,700; Douglas, 1,169; Eagle Pass, 70; El Paso, 5,367; Key West, 24,000; New York, 5,014; Nogales, 420,758.	610. 882

³ Permits authorizing entry of turnips from Holland were revoked April 8, 1927, on account of the turnip gall weevil.

TABLE 24.—*Importations of brooms and broomcorn, by country of origin and port of entry, 1926-27*

Country	Boston		New York, brooms (cases and bundles)	Total	
	Brooms (cases and bundles)	Broomcorn (bales)		Brooms (cases and bundles)	Broomcorn (bales)
Canada.....	1			1	
Germany.....			1	1	
Hungary.....	1	684	2	3	684
Italy.....		381	123	123	381
Rumania.....			8	8	
Total.....	2	1, 065	134	136	1, 065

In addition to the regulated imports for consumption entry recorded in the foregoing tables, the board supervised the entry under permit, for immediate exportation or immediate transportation and exportation in bond, of great quantities of plants and plant products. Among some of the principal items may be mentioned 35,585½ pounds of tree seed, 540,675 fruit and rose stocks, 2,047,300 convallaria pips, 76,270 pounds of potatoes, 24,557,766 pounds of onions, 6,603,555 crates of grapefruit, and 10,834,549 pounds of tomatoes.

ENFORCEMENT OF DOMESTIC-PLANT QUARANTINES

The board is now enforcing, either directly or in cooperation with the Bureau of Entomology or the Bureau of Plant Industry, 19 domestic-plant quarantines concerning on the one hand interstate movement, and on the other hand movement between Hawaii or Porto Rico and the mainland.

The Hawaiian and Porto Rican quarantines are in a sense analogous to the foreign quarantines and entail like

methods of enforcement. The domestic quarantines which affect movement of plants and plant products between States for the purpose of preventing spread of new pests vary as to the efficiency of control of such spread with the nature of the pest. Diseases with wind-borne spores, such as the white-pine blister rust, and active rapidly flying insects, such as the Japanese beetle, are spreading locally in spite of stringent restrictions on the movement of infested products. On the other hand, the dissemination of soil-borne diseases such as the potato wart, and comparatively sedentary insects such as the gipsy moth and the date scale, is being efficiently prevented by co-operative effort under the Federal and supplemental State quarantines. In the former class, regulatory measures are being directed primarily toward preventing the establishment of isolated outbreaks which would result from the carriage of pests for long distances in commerce. In this particular the European corn borer, cotton pink bollworm, Japanese beetle and blister rust quarantine measures have been markedly successful. The separate areas in which there exist infestations of the pests named, in most cases represent separate introductions from foreign countries prior to the American legislation on the subject.

To make quarantine protection effective, the board needs and to a large extent has secured the hearty cooperation of the transportation companies and the traveling public. Express and freight agents and postmasters refuse to accept articles offered for shipment in violation of regulations and constitute the most important link in the enforcement personnel. For the purpose of detecting and intercepting contraband material, road stations are maintained around the European corn borer, Japanese beetle, pink bollworm, and *Thurberia* weevil infested areas. Very material aid in the enforcement of all quarantines relating to the movement of certain classes of nursery stock is given by the inspection at destination, now required and enforced by most States. This applies particularly to the articles restricted in movement on account of the gipsy moth, the brown-tail moth, the satin moth, the blister rust, and black stem rust. It has been possible also to make some inspection of parcels and freight in transit at important junction or transfer points. Such inspections have resulted in the discovery of upwards of 300 violations, many of them

by persons unaware of the restrictions and others through carelessness on the part of dealers. The road-station inspections have resulted in thousands of interceptions of contraband material, often infested with living pests.

Of the quarantines discussed in general terms above, those on account of the white-pine blister rust and the black-stem rust of small grains are enforced in cooperation with the Bureau of Plant Industry. The quarantines on account of the Mediterranean fruit fly and the melon fly in Hawaii and, on the mainland, the quarantines on account of the Japanese beetle, the European corn borer, and the gipsy and brown-tail moths are enforced in cooperation with the Bureau of Entomology. Detailed discussion as to the results of such quarantines cooperatively enforced with bureaus of the department is eliminated from this report inasmuch as these subjects will be considered in the reports of the bureaus concerned. Some discussion is, however, desirable and is given relative to quarantines which are enforced under appropriations assigned to the board. These include the quarantines on account of the pink bollworm of cotton, *Thurberia* weevil, and the date scale, with some discussion of the Mexican fruit worm, the latter representing a new and important pest entry into the United States.

STATUS OF PINK BOLLWORM CONTROL

WESTWARD EXTENSION INTO ARIZONA

The important new phase of the year in the pink bollworm situation was the determination of its westward extension, involving three counties in southwestern New Mexico and three counties in southeastern Arizona. The first finding of infestation was at San Simon, Ariz., on November 19, 1926, and the determination, which was at once undertaken, of what seems to be the full extent of this westward spread was completed about the end of December. Some 10,000 acres are involved, consisting of fairly small areas more or less widely separated by stretches of mountain and desert. The isolation of these cotton areas should make the elimination of the pest simple in comparison with the eradication work which was done years ago in Texas and Louisiana. The surveys which were made as to other cotton areas in Arizona, including the very important Salt River Valley area,

seemed to indicate that there had been no wider spread of this pest in that State.

This new development, coming after the completion of the work on the appropriation for 1928 and representing a new and serious emergency, led to a request for a deficiency appropriation of \$50,000, and an item reduced to \$35,000 to meet this need was included in the second deficiency bill of 1927 which failed to pass. The situation demanded immediate work looking to early eradication of this pest in these new areas, and, therefore, pending action on the deficiency item, funds were secured to institute such work by reduction and, in part, discontinuation of other very necessary pink bollworm work in New Mexico, Texas, and Louisiana. An intensive inspection was immediately undertaken with respect to the crop of 1926 in the invaded counties and so far as possible the infested fields were cleaned, following methods which had been successful in the similar work in eastern Texas and in Louisiana.

Owing to the lateness of the season when this work could be started and the early plowing by planters of the fields concerned, it was possible to complete this clean-up work only as to one county in Arizona, namely, Cochise, involving approximately 1,500 acres. It is proposed, therefore, to secure or adjust funds in such manner as to enable the clean-up of all the new areas of infestation in connection with the crop of 1927. In this work and in the necessary controls to prevent spread, Arizona and New Mexico gave full cooperation. Under an order from the State entomologist of Arizona, cottonseed which had not moved up to the time infestation was discovered was required to be sterilized, and was then sent to Tucson in approved cars for immediate crushing. As to other movement of seed, it was later determined that all such seed had been sent either to El Paso or Tucson for crushing, greatly minimizing any risk. Controls were also placed on the movement of cotton lint. Such controls were followed up and supplemented as to interstate movement of cotton products by Federal quarantine action. (See p. 29.)

Complete tracing records were made by the board of all seed movement from the infested areas since 1923. Fortunately, 93 per cent of the cottonseed produced had been shipped either to Tucson or El Paso for crushing. Scouting in the vicinity of the destina-

tion of all shipments which it was possible to trace, showed no indication of the pink bollworm.

This spread of the pink bollworm into western New Mexico and eastern Arizona very possibly resulted from the movement of laborers from Mexico with their personal baggage, including pillows, mattresses, etc., articles usually stuffed with seed cotton, and the latter often infested with the larvae of this pest, and therefore indicates the necessity of strengthening at strategic points the inspection of the movement by motor or otherwise of such labor—work which has been very greatly restricted on account of inadequate funds.

STATUS IN OLD AREAS OF INFESTATION

The old areas of infestation by the pink bollworm, involving areas in eastern New Mexico along the Rio Grande in Texas and in the Pecos Valley in Texas and New Mexico, in central and eastern Texas, and in Louisiana, present two very distinct problems, namely, (1) as to the eradication areas in central and eastern Texas and in Louisiana where the pest has apparently been successfully eliminated, and (2) as to the areas along the Rio Grande and Pecos Valleys in western Texas and in New Mexico where no intensive effort has been made to eradicate the pest, it being realized that in these areas the opportunity of reinvasion from Mexico would make any effort at eradication wasteful—certainly so as to areas in the Rio Grande Valley.

The eradication areas.—With respect to the areas where the pink bollworm has been eliminated, the scouting of the year developed no evidence of any renewal of infestation and, in fact, no infestation has been found in any of these areas since 1921. It is perhaps worthy of note that this eradication over wide areas in eastern Texas and in Louisiana, together with the control of this pest in the western areas, has been effected by an expenditure of funds representing less than 0.02 per cent of the value of the crop for the period involved—certainly an insurance rate which can be well afforded. On the other hand, it would certainly seem to be a fair inference, in view of the wide foothold of the pink bollworm in the States mentioned, that except for these expenditures and the thoroughness of the eradication effort, this pest would certainly have now been widely spread throughout the Cotton Belt.

The infested areas.—The areas now known to be more or less infested by the pink bollworm include practically all cotton plantings in Texas and New Mexico from the Pecos River to the western boundary line of Cochise and Graham Counties, Ariz. It is significant that this territory produced last year a total of less than 150,000 bales of cotton, an amount which is less than the production of a single important cotton county in the Mississippi Delta. The recent spread westward in New Mexico and Arizona has already been discussed. With respect to the old areas of continuing infestation in western Texas and New Mexico, the status of the pink bollworm is about the same this year as it was last. In the Big Bend area of Texas infestation has remained uniformly high from year to year, while in the other areas there have been wide fluctuations. In one field in the Big Bend area infestation approached the saturation point by the last of October, when 96 per cent of the green bolls were infested.

In the last annual report, attention was called to several isolated infestations in volunteer patches of cotton which were found in the regulated areas and which were from 35 to 50 miles from any previously known infestation. During the 1926 crop year a similar isolated infestation was found 20 miles south of Marathon, at which place a 3-acre field of cotton was being grown. The cotton field was located 65 miles from any other cotton. The field was thoroughly cleaned in the same manner in which new infestations have been handled in the past.

SCOUTING—ALL AREAS

The field scouting of cotton as to all areas to determine the pink bollworm status totaled for the season 6,977 man-days, which compares favorably with the previous years, but an examination of the accompanying table "Summary of pink bollworm scouting showing number of man-days scouting and number of infested fields for each of the

districts scouted" indicates that there has been a considerable diminution of scouting in the eradication areas in recent years. Such lessened work has been occasioned by the demands of regulatory and control work connected with the disinfection and certification of cotton for movement from infested areas, etc.—work which had to be taken care of. An effort was to have been made, however, to have very much increased the scouting as to the eradication areas in connection with the crop of 1926, with the idea of eliminating if possible any suspicion that there might be infestations undiscovered slowly building up in any of these areas. The necessity, however, of meeting the emergency occasioned by the westward spread of the pink bollworm into Arizona led to such diversion of forces and funds as to prevent the carrying out of this plan. A very considerable element of scouting of the year—and this had been carried out prior to the determination of the westward extension—had relation to points, more or less widely scattered throughout the Cotton Belt, to which seed from infested areas was traced years ago, at or near the beginning of the pink bollworm eradication effort—such scouting being with the idea of final elimination from further consideration of such areas. Similarly, it is proposed to make an intensive scouting of these eradication areas in Texas and Louisiana in connection with the crop of 1927 to make it possible to eliminate for a series of years further scouting of these areas.

Some border scouting in Mexico was conducted during the year, although much reduced over previous years for the reasons already indicated. This scouting developed the recurrence of infestation at Allende, a point only 40 miles southwest of Eagle Pass, Tex., opposite a region in the lower Rio Grande Valley at present uninfested by the pink bollworm. This finding is an illustration of the necessity of keeping constant watch over plantings of Mexican cotton close to our border.

TABLE 25.—*Summary of pink bollworm scouting showing number of man-days scouting and number of infested fields for each of the districts scouted, 1917-1926*

District	1917		1918		1919		1920		1921	
	Man-days	In-fested fields	Man-days	In-fested fields	Man-days	In-fested fields	Man-days	In-fested fields	Man-days	In-fested fields
The eradication areas:										
Hearne, Tex.	164	5	471	0	650	0	505	0	369	0
Trinity Bay, Tex.	645	156	829	0	1,796	51	2,006	28	1,518	1
Ennis, Tex.	0	0	0	0	0	0	0	0	798	5
Marilee, Tex.	0	0	0	0	0	0	0	0	340	2
Cameron, La.	0	0	5	0	104	22	213	0	319	0
Shreveport, La.	0	0	0	0	46	0	486	10	320	0
The infested areas:										
Pecos Valley, N. M. ¹	0	0	111	0	57	0	310	2	63	4
Pecos Valley, Tex.	0	0	555	9	1,123	1	850	15	299	21
Mesilla Valley, N. Mex.	0	0	0	0	0	0	210	4	20	3
Mesilla Valley, Tex.	0	0	0	0	0	0	30	1	7	3
El Paso Valley, Tex.	0	0	103	0	158	0	339	14	78	9
Big Bend, Tex.	0	0	4	18	(2,3)	1	(3)	0	22	11
Big Bend, Mexico	0	0	(3)	3	(3)	0	(3)	0	(3)	1
Juarez Valley, Mexico	0	0	0	0	0	0	0	0	0	0
San Carlos, Monclova, Mexico	(3)	4	(3)	2	17	6	(3)	1	48	7
Areas west of Mesilla Valley, N. Mex. ²	0	0	0	0	0	0	0	0	0	0
Suspicious areas:										
Western extension	0	0	16	0	105	0	123	0	463	0
Lower Rio Grande, Tex.	9	0	107	0	156	0	279	0	520	0
Lower Rio Grande, Mexico	0	0	0	0	30	0	0	0	131	0
Other areas ³	366	0	1,278	0	1,375	0	2,663	0	4,143	0
Total	1,184	165	3,479	32	5,617	81	8,014	75	9,458	67

District	1922		1923		1924		1925		1926	
	Man-days	In-fested fields	Man-days	In-fested fields	Man-days	In-fested fields	Man-days	In-fested fields	Man-days	In-fested fields
The eradication areas:										
Hearne, Tex.	172	0	255	0	0	0	0	0	0	0
Trinity Bay, Tex.	891	0	1,225	0	1,046	0	787	0	828	0
Ennis, Tex.	671	0	740	0	835	0	606	0	566	0
Marilee, Tex.	461	0	611	0	612	0	237	0	283	0
Cameron, La.	632	0	718	0	655	0	649	0	661	0
Shreveport, La.	332	0	648	0	826	0	606	0	568	0
The infested areas:										
Pecos Valley, N. Mex. ¹	282	0	1,212	0	741	0	626	16	97	0
Pecos Valley, Tex.	386	0	421	5	650	15	183	22	32	8
Mesilla Valley, N. Mex.	65	0	231	0	158	0	155	0	47	2
Mesilla Valley, Tex.	12	1	0	0	140	0	17	1	1	2
El Paso Valley, Tex.	261	4	406	1	397	1	131	14	114	4
Big Bend, Tex.	27	24	66	36	167	62	(4)	96	(4)	-----
Big Bend, Mexico	0	0	2	3	(3)	2	0	0	(4)	-----
Juarez Valley, Mexico	5	1	0	0	0	0	2	3	27	0
San Carlos, Monclova, Mexico	5	2	26	0	40	0	37	0	36	2
Areas west of Mesilla Valley, N. Mex. ²	0	0	0	0	0	0	0	0	528	18
Suspicious areas:										
Western extension	120	0	39	0	16	0	746	0	967	0
Lower Rio Grande, Tex.	818	0	881	0	354	0	886	0	671	0
Lower Rio Grande, Mexico	0	0	35	0	34	0	16	0	15	0
Other areas ³	2,720	0	1,860	0	777	0	687	0	1,536	0
Total	7,760	32	9,376	45	7,448	80	6,371	152	6,977	36

¹ Infestation in this valley was confined in the past to Carlsbad and vicinity and is referred to in previous reports as "Carlsbad" infestation.

² 0.50 man-day or less.

³ Non-cotton zone year.

⁴ Research examinations.

⁵ Figures not available.

⁶ Includes Safford and Duncan Valleys of Arizona and New Mexico, Willcox, Ariz., and Deming, N. Mex.

⁷ Covers scouting done around centers in the Cotton Belt to which seed from infested areas had been distributed in the earlier years of the campaign of eradication. These areas were thoroughly investigated for a number of years afterwards without finding any infestation, but it seemed desirable to give them an intensive resurvey before releasing them from further consideration.

CONTROL OPERATIONS

Control operations under the quarantine on account of the pink bollworm involve the enforcement of restrictions on the movement of cotton, cottonseed, and cottonseed hulls, the supervision of seed disinfection at the gins, and the disinfection and compression of cotton as a condition of interstate movement, together with road-inspection work, inspection of cars, etc. This work necessarily increases with the growing cotton production in the infested areas and with spread of the pest. A few of the items of interest under this work are noted below:

Cottonseed heating.—The operation of the cottonseed-heating machines in connection with the gins in the infested areas constitutes perhaps the most important measure which is being carried out to prevent the spread of the pink bollworm. The heating machines operated at an average efficiency of 87 per cent throughout the regulated area, and at over 90 per cent in the most heavily infested territory, which was about the same as for the year previous, but much better than in former years.

Vacuum fumigation.—During the year 134,499 bales of cotton lint and linters were given vacuum fumigation with hydrocyanic-acid gas at the fumigation plants which are operated under the supervision of the board's inspectors. Of this number, 129,473 were produced in the regulated (i. e., infested) areas, and 5,026 were imported from the Juarez Valley of Mexico. There are at present five vacuum fumigation plants in the regulated territory, located respectively at Las Cruces and Roswell, N. Mex., and at El Paso, Marfa, and Pecos, Tex. Two additional vacuum fumigation plants are at present under construction at Fabens, Tex., and two others are in prospect at Tucson and Fort Stockton, respectively.

Road stations.—During the year, road stations were maintained at Lordsburg, Mesilla Park, Roswell, and Carlsbad, N. Mex., and Odessa, Fort Stockton, and Sanderson, Tex. A total of 89,274 cars was inspected, from which 3,194 lots of cottonseed, seed cotton, cotton-pickers' sacks, and other materials likely to carry infestation, were taken.

Inspection of railway cars.—Under the provisions of the pink bollworm regulations, railroads are required to clean all cars of cottonseed, seed cotton, and other materials before they

are moved out of the regulated areas. Inspections of about 600 railway cars showed that many of them contained cottonseed and cotton lint, and while many of these cars were doubtless contaminated outside of the regulated areas, the necessity of close supervision of car cleaning is emphasized.

INVESTIGATIONS

Investigations of native plants in the Big Bend area, which might serve as hosts for the pink bollworm, were continued. During the course of the investigations, between 20 and 30 native malvaceous plants were collected. The activities of pink bollworms under field conditions in late winter and early spring were investigated. Investigations with a view to getting more information on optimum conditions for vacuum fumigation were continued.

COOPERATION WITH MEXICO

Cooperation with Mexican authorities has made it possible to greatly strengthen the administration of the pink bollworm quarantine. All cotton cultures on the Mexican side of the Rio Grande (Juarez Valley) are being effectively regulated and gins on the Mexican side of the river are maintaining cottonseed heaters giving a high percentage of efficiency.

REVISION OF THE PINK BOLLWORM QUARANTINE

As a result of the discovery of the pink bollworm in southeastern Arizona and southwestern New Mexico, a hearing was called at Washington on May 16, to consider the matter of extending the provisions of the pink bollworm regulations to the recently involved territory, and of releasing, for the present, the counties in Texas from which the insect had apparently been eradicated. Quarantine No. 52 has now been revised, providing for these changes, and adding the requirement that cotton lint to be moved interstate from the regulated areas must be compressed as well as disinfected.

During the year the State regulations of Texas were amended to include the counties of Kinney, Maverick, and Val Verde, in the Texas regulated area. Under the provisions of the new State regulations, cottonseed from these counties must go to designated mills for crushing.

THE THURBERIA WEEVIL

During the year inspectors of the department found that the *Thurberia* weevil had spread widely from its native haunts in the mountains of southeastern Arizona, to recently-developed cotton areas in Cochise and southern Graham Counties. Fortunately, cotton culture is a development of only the last two or three years in this section and the plantings are widely scattered. A vigorous clean-up campaign was promptly undertaken, during which all cotton acreage in Cochise County was cleaned of all stalks, bolls, locks of cotton, and other parts of the cotton plant, and all such dangerous material was burned.

In the newly infested area, there is a total of 1,500 acres of cotton, irrigated by wells, scattered from the New Mexico line west to Pima County, and infestations were discovered in all of the cotton-growing areas. Perhaps the most interesting of these was 12 miles south of Benson, Ariz., where a high percentage of bolls was attacked. So far as is known at present, there are no infested *Thurberia* plants closer than 12 miles, from which the weevil might have spread to this field.

On July 9, 1927, quarantine No. 61 was revised, to add these districts to the regulated area and to include a new requirement that cotton lint be compressed as well as disinfected as a condition of interstate movement.

The status of the *Thurberia* weevil in the newly-discovered infested areas now indicates that the board is warranted in regarding this insect as a cotton pest of the first magnitude. As shown in the report for 1926, it has long existed in the mountains of southern Arizona, attacking *Thurberia* which grows abundantly in the canyons of these mountains. Its ability to thrive under the hot, arid conditions of this section of the United States indicates that it may become even more injurious where irrigated cotton is grown in arid regions than the Mexican boll weevil is in the main Cotton Belt.

A total of 1,836 man-days' scouting was devoted to all areas likely to be infested with the *Thurberia* weevil. This included all the principal cotton-growing areas of Arizona and the western part of New Mexico. The work is combined with that of scouting for the pink bollworm, as the most effective season for searching for the two pests comes at the same time of year, namely, the fall and early winter. In Table 26, the number of infested fields and the number of man-days scouting in each of these districts is shown:

TABLE 26.—*Results of scouting for Thurberia weevil, fiscal year 1927*

District	Man-days scouting	Infested fields
Deming, N. Mex.	34	0
Duncan, N. Mex. and Ariz.	68	0
Safford Valley, Ariz.	262	0
Cochise County, Ariz.	160	14
Santa Cruz Valley, Ariz.	20	5
Florence-Casa Grande, Ariz.	82	0
Salt River Valley, Ariz.	785	0
Yuma Plantings, Ariz.	80	0
Other areas, Ariz.	345	17
Total	1,836	36

The most important methods of preventing the spread of this pest consist of compressing and fumigating the cotton lint and of heating the cottonseed. During the season 9,391 bales were given surface fumigation. The method is to be changed to vacuum fumigation for the coming year, and a vacuum plant is being installed at Tucson for this purpose. The seed-heating treatment is applied at the gins, the heating machines in the *Thurberia* weevil regulated area operating at an average efficiency of 89.5 per cent. Their operation was discontinued in the Postvale area in November on account of an injunction to which later reference is made.

Road-inspection stations, to prevent the movement of cotton, cotton products, and articles contaminated with cotton, by truck from the infested districts to outside points, were operated at Sonoita, Benson, Picacho, and two points north and west of Tucson, respectively, during the fall of 1926. In view of the discovery of the *Thurberia* weevil in Cochise County, the stations at Sonoita and Benson are being discontinued.

On October 26, 1926, a temporary injunction was granted in the Federal court at Los Angeles, in favor of the cotton growers of the Postvale area, under the provisions of which the State of Arizona was prohibited from carrying out the State *Thurberia* weevil quarantine within that area. Later the injunction against the State of Arizona was made permanent.

Following the action of the court against Arizona, the Secretary of Agriculture issued a statement that the provisions of the injunction would in no manner affect the operations of the Federal *Thurberia* weevil quarantine. An injunction was then applied for against the Secretary of Agriculture, the Federal Horticultural Board, and their agents, prohibiting them from

carrying out the provisions of quarantine No. 61 as applied to the Postvale area. This injunction was granted on November 19, 1926.

The injunction was effective only as to the 1926 crop. Under its provisions, the court indicated that a motion for its dissolution or modification would be heard in the event that future developments warranted such request. Subsequently, infestations were found in the 1926 crop, both at Fort Lowell and in the Postvale area, and while a rehearing on the injunction was set at various times, it was finally postponed indefinitely. The result of the injunction was that after November 19, 1926, cotton was permitted to be ginned in the Postvale area without compulsory seed heating, and that agents of the board were prohibited from in any manner interfering with the movement of quarantined articles from that area. While the injunction also prevented the department from enforcing the requirement for lint fumigation, the cotton could not enter either California or Texas without fumigation, on account of regulations issued by those States, and practically all of it was therefore given that treatment voluntarily by the shippers.

At the present time the full requirements of the Federal quarantine regulations are being enforced with respect to the 1927 cotton crop throughout the entire regulated area and all the protection within the power of the department is being given uninfested districts to prevent the further distribution of this insect.

QUARANTINE ON DOMESTIC NARCISSUS

At the time commercial importations of narcissus bulbs for immediate sale, or for forcing for cut flowers, were excluded, in January, 1927, it was decided to attempt the eradication of the three principal bulb pests where they occurred in the United States, and thus secure pest-free plantings, if that should prove possible.

Under the provisions of the domestic quarantine, issued in May of that year, the interstate movement of narcissus was made conditional on certification of the bulbs, based on two inspections, the first in the field during the blossoming period, and the second in storage, after the bulbs were lifted. In case infestation was found at the time of either inspection, no interstate movement was allowed unless the bulbs were disinfected or treated under the direction of an inspector.

The enforcement of this quarantine and the supervision of the required

treatments are being carried out in cooperation with the plant quarantine inspection services of the various States. The regulations were not adopted in 1926 in time to provide for field inspection that season, but storage inspection was made of all bulbs moved interstate that fall.

TABLE 27.—*Narcissus inspections reported to the department January 1, 1927, to October 1, 1927*

State	Growers issued certificates showing freedom from infestation	Growers issued disinfection certificates	Bulbs certified
	Number	Number	Number
Alabama.....	2	0	(1)
Arkansas.....	1	0	5,000
California.....	31	25	1,262,510
Connecticut.....	1	0	20,000
Florida.....	70	0	40,145,000
Iowa.....	1	0	(1)
Kansas.....	2	1	16,200
Kentucky.....	1	0	(1)
Louisiana.....	2	0	149,400
Minnesota.....	3	0	71,000
New Jersey.....	5	2	3,910,775
New York.....	14	5	6,083,167
North Carolina.....	6	0	166,000
Oregon.....	56	8	(1)
Pennsylvania.....	1	0	2,534
Rhode Island.....	0	1	(1)
South Carolina.....	3	0	4,545,000
Tennessee.....	1	0	80,000
Texas.....	0	1	8,637,000
Virginia.....	14	0	4,032,200
Total.....	214	43	69,225,786

¹ Number not reported.

NOTE.—The number of bulbs shown in the last column includes, in several States, estimates based on acreage, weight, or number of bushels or crates reported. States from which reports had not been received at the time of preparation of the table include: Georgia, Illinois, Maine, Massachusetts, Michigan, Mississippi, Missouri, Montana, Nevada, Ohio, Washington, and Wisconsin. Several of these States have narcissus plantings of considerable extent. Inspectors of the following States reported that their States contained no commercial narcissus plantings from which bulbs would be available in 1927: Arizona, Colorado, Delaware, Idaho, Indiana, Maryland, Nebraska, New Hampshire, New Mexico, North Dakota, Oklahoma, South Dakota, Utah, Vermont, West Virginia, Wyoming, and the District of Columbia.

In 1927, it was found that a large number of additional applications were received, and that the amount of inspection required was so great as to strain the inspection facilities of the State officers. In a number of States in which infestations of the lesser bulb fly were found, no facilities for treatment existed, and it was necessary to authorize the movement of the bulbs across a State line in order that treatment could be given. Some growers

did not apply for inspection until after the blossoming period had passed and as storage inspection alone can not be relied upon to reveal all the bulbs infested, treatment was required in all such cases.

Of the three pests concerned, namely, the lesser bulb fly, the greater bulb fly, and the eelworm, the first-named is by far the most extensively established in this country. The greater bulb fly and the eelworm, however, are limited to certain localities.

Table 27 shows the result of the State inspections so far as they have been reported at this time.

DATE-SCALE ERADICATION

Several important developments in date culture have occurred during the past year which promise to be of great assistance in completing total eradication of the *Parlatoria* scale affecting date palms, and which also demonstrate the importance of the work.

A method of heat treatment has been worked out in the department, which completely destroys the scales on date palm offshoots without causing permanent injury. The offshoots are held in a room at an air temperature of 185° F., until the interior of the buds reaches 128°, and the leading bud is killed. This method is proving so successful that after further tests it may be found safe to modify the Federal quarantine and provide for the movement of palms so treated from the regulated territory.

A new date-growing area is being started in the Borego Valley, San Diego County, Calif., which thus far is free from scale insects and, it is believed, can be kept so. No imported palms or palm offshoots, or those coming from infested areas in the United States, are permitted movement into that district unless given the heat treatment described.

The *Parlatoria* scale eradication program appears to have been successfully concluded in the Salt River Valley of Arizona, in which no infestation has been found for about four years. As will be seen from Table 28, the insects persist in small numbers at Yuma, Ariz., and in the Imperial and Coachella Valleys of California, where from 14 to 40 infested palms a month were found and torched by the inspectors during the inspection season.

The insects are extremely scarce in the four most extensive commercial plantings there, one of which has apparently been free from them for several years, and the others for nearly one year. The recent discovery of a

new infestation in one of the Coachella Valley orchards was followed by an immediate and active eradication campaign.

TABLE 28.—*Results of inspections for the Parlatoria date scale from September 1, 1926, to September 1, 1927*

County	Palms inspected	Palms found infested (all were treated)
Imperial County, Calif.	2,625	67
Riverside County, Calif.	72,326	321
Yuma County, Ariz.	37,942	26
Maricopa County, Ariz.	14,848	0
Total.....	127,741	414

The entire project is now in a most difficult stage, the insects being so scarce that they are located by inspectors only rarely and with the utmost difficulty. The situation is such that total eradication of the *Parlatoria* scale is considered possible if that work can be continued vigorously. Judging from conditions in Algeria and other infested countries, and injury in the United States in past years, date production, now bringing a return of a quarter of a million dollars a year, probably can not be continued profitably in this country unless the *Parlatoria* scale is exterminated. Experts of the Bureau of Plant Industry estimate that the ultimate investment in this country in case the eradication program is successful, will be between \$30,000,000 and \$50,000,000, at the present rate of increase.

The other scale insect for which control measures are being undertaken, *Phoenicococcus marlatti*, is still strongly entrenched and is known to infest almost all of the 40,000 or more imported date palms in the United States. It is proving less injurious than the *Parlatoria* and is being kept under control by spraying. The scale-free date plantings being established in the Borego Valley of California, in Nevada, and other States are, however, being kept free from *Phoenicococcus* also.

MEXICAN FRUIT WORM

The most serious menace to American agriculture which has developed in recent years concerns the spread of the Mexican fruit worm into the lower Rio Grande Valley of Texas. This pest seems to be a native of southern Mexico, where it has long been known to infest a variety of fruits, particularly grapefruit, oranges, mangoes,

peaches, and guavas. In May the department received information that this pest was scattering but rather widely present in the grapefruit orchards in Cameron and Hidalgo Counties, Tex. The area in which the insect has been found in Texas is a comparatively new grapefruit-growing region, extending from near the mouth of the Rio Grande up the river about 60 miles and for a width of about 30 miles. At present about 30,000 acres have been planted to citrus trees, more than three-fourths of which are grapefruit, the other being oranges, lemons, limes, etc. Only a small proportion of these trees has yet come into bearing, the crop of 1926-27 consisting of 781 carloads by freight and 59,595 crates sent by express, a total of approximately 310,595 crates, of which 275,755 were grapefruit. The incipency and scattered character of the infestation may be indicated by the fact that as a result of the survey conducted by this department, the Texas Agricultural Experiment Station, and the Texas Department of Agriculture during April, May, and June infested fruit was found in only 12 orchards located at various points in Cameron and Hidalgo Counties. A total of 685 specimens of the Mexican fruit worm were found, most of these, however, from comparatively few trees, the infestation being concentrated at a few points rather than general. No infestation was found other than in grapefruit and sour oranges.

Following the discovery of this pest in the region indicated, the department, in cooperation with the Texas Department of Agriculture and the local interests, secured the immediate clean-up and disposal of all hang-over citrus and other fruits in the district which could serve as hosts to carry the insect over to the succeeding year. The taking of similar measures on the Mexican side opposite Brownsville was made possible by the cooperation of public-spirited citizens and local Mexican authorities.

The existence of this fruit worm in Mexico has long been known, and realizing the seriousness of its menace to the fruit interests of this country the department, in 1913, promulgated a quarantine prohibiting the entry from Mexico of all known host fruits of the pest, and this quarantine has been enforced as strictly as possible with the inspectors available at all Mexican border ports. Infested fruit has, however, frequently been found on sale in the markets in the Mexican towns opposite the American ports of entry,

and some of this fruit has undoubtedly occasionally been smuggled across for local consumption. The fact that this pest has not appeared in the lower Rio Grande Valley on the American side, where the growth of citrus and other subtropical fruits is possible, at an earlier date has evidently been due largely to the absence of fruit cultures of any importance in that district. This situation has, in recent years, been radically changed by the development of the very considerable and successful grapefruit industry in Texas in the lower Rio Grande Valley.

Early in August, 1927, quarantines were promulgated by this department and the State of Texas placing restrictions on the movement of susceptible fruits from the infested area and calling for drastic controls within the area, the latter having as their object the immediate eradication in the district concerned of this pest. These control measures include the elimination of all fruits other than grapefruit and citrus and other fruit ripening at the same time as the grapefruit and not involving increase of risk of propagating the Mexican fruit worm. Controls are placed also on permitted fruit to limit its movement out of the district to five months of the year, with the object of thus maintaining a seven-months' starvation period, i. e., in which there will be no fruit suitable for the propagation of the pest. The measures also include provision for the immediate destruction during the shipping period of fruit found to be infested as to any orchard or district within the area. By such drastic measures, taken at the very beginning of the invasion, it is believed that this pest can be eradicated and that by a continuation of these measures the area can be protected from any future or continuing reinvasion. The severity of these controls is believed to be fully warranted by the menace which this pest has to the fruit production of the southern half of the United States, including all citrus fruits and much of our peach crop.

The first phase, which was immediately undertaken, of the clean-up work of the year consisted in the destruction of the citrus fruit on the trees in commercial orchards and the clean-up of other possible host fruits. This work was begun May 24 and completed early in June. A second clean-up campaign in July was confined almost entirely to guavas. The volume of such clean-up work made it quite

apparent that the only feasible method of control would be the elimination of all fruit trees not falling within the plan of authorized commercial production, and in general this idea has been assented to with some modification. Necessarily, all such clean-up and other local work must be done in cooperation with the State of Texas and under the police authority of that State. To facilitate such work, the Texas commissioner of agriculture, at the request of the commissioners' courts of Cameron, Hidalgo, and Willacy Counties, has issued regulations which will make it unlawful for anyone to maintain fruiting trees or bushes of any of the varieties of fruit attacked by the Mexican fruit worm except citrus.

In general, the Federal and State Departments of Agriculture are receiving the hearty cooperation of the producers in the valley, as well as the local officers, all of whom realize the serious nature of the pest and the disaster which a general infestation would bring about. It is believed that by maintaining an eradication campaign of this kind it will be possible to ship fruit safely from the regulated area during the months from October to February, inclusive, under inspection and certification, without incurring any danger of spreading the fruit worm to other regions.

ECONOMIC IMPORTANCE

The menace of this pest to the citrus industry of this country, including other fruit production certainly over the lower half of the United States, has already been alluded to, and this menace extends to practically all tree fruits. In the case of citrus fruit, the presence of the maggots in the fruit can not usually be determined until a fairly late stage, and therefore infested fruit may be shipped in ignorance of such infestation and thus be a means of spreading the pest widely. Incidentally it may be noted that the United States is the only country in which citrus and other fruits are free from the important fruit flies which infest practically all other countries of the world, and even a small percentage of such infestation in citrus fruit which would not be discovered until the fruit was eaten would create public distrust and might greatly reduce the demand for this fruit. The parent of the Mexican fruit worm is a small fly (*Anastrepha ludens*) scarcely larger than the house fly, but of brownish color and with the wings crossed by oblique dusty

bars. This fly places its eggs directly in or through the skin or rind of fruits and the maggots develop in the fruit which, as indicated, may appear perfectly normal until the maggots have reached nearly full growth and begin to puncture the fruit preliminary to their escape for transformation in the soil.

ERADICATION PROGRAM

As already indicated, the work that was immediately instituted had for its object the eradication of this pest to maintain if possible this fruit district in the lower Rio Grande Valley free from it in the future. The immediate clean-up work was conducted by cooperation of the Federal Horticultural Board with the State authorities and the residents of the district concerned. It was possible for the pink bollworm inspectors working in that district to give a good deal of aid to this work. There being no funds, however, available or possible of being diverted under the law under the appropriations for the Federal Horticultural Board to continue such work of control, the sum of \$30,000 was made available from the appropriations to the Bureau of Entomology and this work of quarantine enforcement is now being temporarily carried out by that bureau, in cooperation with the board, and a supplemental emergency appropriation of \$100,000 has been requested to finance this work for the fiscal year 1928, \$80,000 of which will be used for control operations, leaving \$20,000 available to initiate research work. Beginning with the fiscal year 1929 it is proposed that the quarantine work shall revert to the board and that all biological and other research will continue with the Bureau of Entomology.

NEW AND REVISED PLANT QUARANTINES

DOMESTIC

The following quarantines have been either promulgated or revised during the year:

The European corn borer quarantine, amended August 4, 1926, to include additional infested territory in Ohio, revised November 23, 1926, to include the States of Indiana and West Virginia, bringing shelled corn and seed of broomcorn under the requirement of inspection and certification, providing for the disinfection of any restricted articles found to be infested, and providing for the inspection of restricted plants and plant products in transit was revised February 15, 1927, to include the States of Connecticut and

New Jersey, and additional infested territory in Rhode Island and New York, and amended August 6, 1927, to simplify the conditions governing the movement of shelled corn.

The gipsy moth and brown-tail moth quarantine was revised May 17, 1927, releasing 13 towns in Vermont and 2 in Connecticut from quarantine, and placing restrictions on the interstate movement of certain plants not grown in nurseries—plants not covered by the former regulations.

The Japanese beetle quarantine, amended July 3, 1926, to permit the use of hay and straw for packing articles other than fruits and vegetables, revised October 2, 1926, to include the States of New York and Connecticut, and extending the areas under regulation in New Jersey, Pennsylvania, and Delaware, amended November 17, 1926, to provide for unrestricted movement of imported nursery stock from a port within the regulated area when reshipped from such port in original containers, was revised March 21, 1927, to correct wording and arrangement, and to transfer to the appropriate regulations much of the matter theretofore carried in the appendix, was amended June 18, 1927, to include two additional townships in Pennsylvania in the regulated area, and again amended August 3, 1927, to require inspection and certification of all farm products and cut flowers produced in the infested area and moving interstate by boat from New York City.

The narcissus bulb quarantine was revised April 15, 1927, slightly modifying the conditions governing interstate movement of narcissus bulbs to meet conditions which have grown out of the first year's experience under the quarantine.

The white-pine blister rust quarantine (No. 63 supersedes Nos. 26 and 54), promulgated August 27, 1926, prohibiting or restricting the interstate movement of five-leaved pines, currant and gooseberry plants throughout the United States, was revised February 17, 1927, to correct minor errors in the original edition and to make more clear the requirements governing interstate movement of the plants concerned.

The satin moth quarantine was revised October 30, 1926, to include the State of Connecticut and extend the infested areas in Rhode Island, Massachusetts, New Hampshire, and Maine.

The pink bollworm quarantine was revised July 9, 1927, to include the State of Arizona, to add three counties in New Mexico to the regulated area,

and to require the compression as well as disinfection of cotton lint as a condition of interstate movement.

The *Thurberia* weevil quarantine was revised July 9, 1927, to include all of Cochise and part of Graham Counties, Ariz., in the regulated area, to require the compression as well as disinfection of cotton lint as a condition of interstate movement, specifying the conditions for interstate movement of cottonseed cake and meal, bagging and other containers of cotton, farm household goods, farm equipment, and other articles contaminated with cotton, and prohibiting the interstate movement of the *Thurberia* plant from any portion of Arizona.

The Mexican fruit worm quarantine was promulgated August 10, 1927, restricting the interstate movement from the counties of Cameron, Hidalgo, and Willacy, Tex., of host fruits in the raw or unprocessed state.

FOREIGN

The European corn borer quarantine, revised December 16, 1926, to limit the entry of products covered thereby to clean shelled corn, clean seed of broomcorn, and broomcorn for manufacture, was revised February 10, 1927, superseding the quarantine against Mexican corn, and requiring the securing of permits for the entry of broomcorn for manufacturing brooms or similar articles made of broomcorn, clean shelled corn, and clean seed of the other plants covered by the quarantine, and amended July 5, 1927, to provide for the entry, under permit and upon compliance with the regulations, of green sweet or sugar corn on the ear.

The nursery stock, plant, and seed quarantine was revised March 17, 1927, to incorporate in one document the quarantine and regulations thereunder and the four amendments to the regulations issued subsequent to the last edition, and making certain minor changes in regulations 4, 7, and 15.

TERMINAL INSPECTION OF MAIL SHIPMENTS OF PLANTS AND PLANT PRODUCTS

The terminal inspection points in Mississippi, Arkansas, and Utah, for the inspection of mail shipments of plants and plant products under the authority of the act of March 4, 1915, were revised during the year. No additional States inaugurated terminal inspection during the fiscal year 1927. The following States are now maintaining such inspection: California, Arizona, Montana, Florida, Washing-

ton, Arkansas, Mississippi, Utah, Oregon, Georgia, Idaho, and Oklahoma; also the District of Columbia and the Territory of Hawaii.

**CONVICTIONS AND PENALTIES IMPOSED
FOR VIOLATIONS OF THE PLANT QUAR-
ANTINE ACT**

The following convictions and penalties imposed for violations of the plant quarantine act were reported to the board during the year:

White-pine blister-rust quarantine (No. 26): Sixteen convictions, with fines aggregating \$405 imposed.

Japanese-beetle quarantine: Fifteen convictions, with fines aggregating \$1,135 imposed.

Nursery stock, plant, and seed quarantine: Two convictions, the defendant in one case being fined \$95, and in the other case being sentenced to serve 29 days in jail. The sum of \$5,000 was also received covering liquidated damages tendered by one importer for violating the liability agreement entered into by his agent.

Quarantines affecting Mexican products: Ten convictions, with fines aggregating \$380 imposed. Fines aggregating \$55 were also imposed by customs officials on the Mexican border against 11 persons who were caught while attempting to smuggle in from Mexico prohibited plants and plant products.